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SOCIAL CAPITAL INFLUENCES IN WOMEN AT RISK FOR
POOR PREGNANCY OUTCOMES

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Public Affairs Program
in the College of Health and Public Affairs
at the University of Central Florida
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ABSTRACT

Poor pregnancy outcomes such as prematurity, low birth weight and infant mortality are societal indicators of a nation's health status. These indicators have remained at exceptionally high rates in the United States despite the levels of resources and technology. In the quest to understand that discrepancy, among the ranges of theories and models for explaining poor pregnancy outcomes an emerging concept is coming to attention: social capital.

In order to test whether maternal social capital has an impact on pregnancy outcome, women in a Healthy Start program were surveyed over a 13-month period to assess their social capital levels and then their pregnancy outcomes. What emerged was that maternal social capital can predict up to 47% of the variance in pregnancy outcome. That is a powerful research result considering that previously there has been no literature tracing a link between maternal social capital and pregnancy outcome. In this study, maternal risk factors adversely affect up to 30% of the variance in pregnancy outcomes. Previous research has focused on maternal risk factors as the primary reason for high rates of preterm delivery, low birth weight, and infant mortality in the United States. However, this research found that in the sample of women at risk for adverse pregnancy outcomes, maternal risk factors had a very strong influence on maternal social capital ($R^2=65\%$) while their effects on pregnancy outcomes were about half of their effects on social capital. This result suggests that social capital mediates the effects of maternal risk factors on pregnancy outcomes. It appears that one of the reasons that the high rates of adverse pregnancy outcomes in the United States have remained a mystery is that maternal social capital has not been taken into account.

Ministers often refer to the time they received their calling to serve. My calling was delivered in the late 1990s by Martha Valiant, M.D. At that time, Dr. Valiant was the Director of the Hendry County Health Department and she called me on the phone and said I was needed as a board member on the Southwest Florida Healthy Start Coalition. That phone call changed my career and thus changed my life. Thank you Dr. Valiant, for introducing me to a program that at its core is about improving the health of moms and babies and thus their lives. Thank you for delivering my calling.

This research is part of that calling and is dedicated to the 92 moms and their babies in the Orange County Healthy Start program that participated in this study. Thank you for allowing me access to your lives.

My first words when my son Perry was born were, “He’s perfect” and my sincerest hope is that the outcome of this research will be that all pregnant women have perfectly healthy babies.

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When I began this research project I would comment that it might take a village to raise a child but in order to study that child it takes so much more. I would like to acknowledge all the people who assisted throughout the years that made studying the children possible.

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A manuscript doesn't make it to completion without some really great people at the end making it happen. So here is a huge thank you to Katie Grigg for formatting my dissertation and doing her best to help me keep my sanity during the final semester. Also, thank you Dorothy Silvers for your edits and making my sentences more concise.

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LIST OF ACRONYMS/ABBREVIATIONS

- 1) Activity, Pulse, Grimace, Appearance, and Respiration (APGAR): “Designed in 1952 by Dr. Virginia Apgar at Columbia University’s Babies Hospital, the APGAR (appearance, pulse, grimace, activity, respirations) score is a quick test performed at 1 and 5 minutes after birth to determine the physical condition of the newborn. The rating is based on a scale of 1 to 10. Ten suggests the healthiest infant, and scores below 5 indicate that the infant needs immediate assistance in adjusting to his or her new environment” (HRSA, 2006, p. B-3).
- 2) Gestational Age: The number of weeks a fetus is in the uterus.
- 3) Health Status or Health-related Quality of Life (HRQOL) : The value assigned to duration of life as modified by the impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment, or policy (Patrick & Erickson, 1993).
- 4) Healthy Start: A federal maternal and child health program designed to reduce adverse birth outcomes such as preterm birth, low birth weights and infant mortality. The program provides social support for women and infants from pregnancy up to infant’s age 3.
- 5) Healthy Start Care Coordination Program: A program under the Healthy Start umbrella that targets women at risk for adverse birth outcomes. The women are identified through a screening process and then referred to the program for home visits during which they receive social support services and monitoring.

- 6) **Infant Mortality:** Infant mortality is the term used to report the total number of infant deaths per 1,000 live births that occur before the first birthday (Garner, 1999; McClintock, 1997; National Center for Health Statistics, 1995). This number is a combination of the neonatal and postneonatal death rates (McClintock, 1997; Raykovich et al., 1996).
- 7) **Low Birth Weight (LBW):** Infants who are born weighing between 2,500 grams (5 lbs. 8 oz.) and 1,500 grams (3 lbs. 5 oz.) per 100 live births are classified as being of low birth weight (Garner, 1999; McClintock, 1997; Raykovich et al., 1996; Vangen et al., 2002). One of the major causes of infant mortality in the United States is low or very low birth weight (Garner, 1999; McClintock, 1997; Strobino et al., 1995; Vangen et al., 2002; Wilcox, 2001).
- 8) **Neonatal Death:** Neonatal death is that which occurs within the first 28 days of an infant's life (McClintock, 1997; Raykovich et al., 1996). Studies indicate that 50% to 60% of all neonatal deaths are a result of infants with birth weights below 1,000 grams and occur in low socioeconomic and/ or ethnic groups (Garner, 1999; McCann, 1994; Newberger, Newberger & Richmond, 1976; Raykovich et al., 1996).
- 9) **Perinatal Paradox:** The perinatal paradox was first discussed in the literature as a theory by Rosenblatt (1989) to describe the incongruity of increased medical technology, expanded social programs and yet no satisfactory reduction in the incidence of low birth weight or in infant mortality.
- 10) **Prenatal Care:** Prenatal care is medical care provided routinely by a qualified healthcare professional for the pregnant woman that begins in the first trimester of a pregnancy and culminates in well-child care and age-appropriate immunizations for the child (Moreno et

al., 2000). It is urged that women receive prenatal care as a means of reducing the number of low birth weight infants (Moreno et al., 2000).

- 11) Preterm Birth/ Prematurity: Gestation of the infant of 37 weeks or less.
- 12) Postneonatal Death: Infant deaths that are postneonatal occur after the first 28 days and up to the first birthday (McClintock, 1997; Raykovich et al., 1996).
- 13) Social Capital: The features of social life: networks, norms, and trust that enable [people] to act together more effectively to pursue shared objectives (Putnam, 1995, p. 664-665).
- 14) Sudden Infant Death Syndrome (SIDS) : The death of infants who were within normal birth weight ranges at the time of delivery but appear to have other risk factors that contribute to their death (Dwyer, Ponsonby, Couper, & Cochrane, 1999; McCloskey & Wise, 1999). A high percentage of postneonatal deaths are classified as sudden infant death syndrome or SIDS.
- 15) Very Low Birth Weight (VLBW): Infants who are born weighing less than 1,500 grams (3 lbs. 5 oz), per 100 live births are classified as having very low birth weight (Garner, 1999; McClintock, 1997; Raykovich et al., 1996; Vangen et al., 2002). When an infant's birth weight is below 1,000 grams the chance of mortality is exceptionally high, and with birth weights of less than 500 grams there is a 90% mortality rate (Garner, 1999).

CHAPTER ONE: INTRODUCTION

A commonly held belief in American society is that the United States has the most advanced medical system in the world (Lamm, 2000; Shiono & Behrman, 1995). Often, poor pregnancy outcomes such as infant mortality are thought of as health conditions affecting countries far less developed than the United States. The reality is that for over three decades the United States, despite its status as an industrialized nation and its advanced medical technology, has consistently lagged behind other less industrialized nations in reducing the rate of poor birth outcomes (HRSA, 2006).

Though the United States had not kept pace with other nations in reducing preterm birth, low birth weight and infant mortality, as a trend line, the rates had declined consistently for thirty years. Then, within the last decade, the direction of the trend increased sharply (El Reda, Grigorescu, Posner & Davis-Harrier, 2007; MacDorman, Martin, Mathews, Hoyert, and Ventura, 2005).

That reversal is a red flag since poor birth outcomes such as preterm birth, low birth weight, and infant mortality have long been viewed as measures of a nation's health and well-being. They provide "a quick measure of the quality of food and water, housing and clothing, health care, and education available in a population" (HRSA, 2006, p. 5; Reidpath & Allotey, 2003).

Infants born preterm and/or with low birth weight not only are at increased risk for infant mortality and morbidity (Lee, Mitchell-Herzfeld, Lowenfels, Greene, Dorabawila & DuMont, 2009; McCormick, 1985; Petrini, Russell, Davidoff, Poschman, Green & Damus, 2004; Solomon & Liefeld, 1998) but risk as well a host of life-long negative consequences: brain damage (Hack,

Klein & Taylor, 1995), deafness (Bergman, Hirsch, Fria, Shapiro, Holzman & Painter, 1985), blindness (Gallo & Lennerstrand, 1991), cerebral palsy (Ellenberg & Nelson, 1979; Odding, Roebroek & Stam, 2006; O'Shea, 2008; Paneth, 1995), epilepsy (Sun, Vestergaard, Pedersen, Christensen, Basso & Olsen, 2008; Whitehead, Dodds, Joseph, Gordon, Wood, Allen, Camfield & Dooley, 2006), lung and/or liver disease (Hack et al., 1994; Kraybill, Bose, & D'Ercole, 1987; Paneth, 1995; Shiono & Behrman, 1995), cognitive developmental problems (Anderson Moore, Ruane Morrison & Dungee Greene, 1997; Hack, Klein & Taylor, 1995; Hack, Taylor, Klein, Eiben, Schatschneider & Mercuri-Minich, 1994; Lee et al., 2009; Paneth, 1995), learning disabilities and attention deficit disorder (McCormick, Gortmaker & Sobel, 1990), higher rates of abuse and neglect (Gorham, 1997; Lee et al., 2009; Sidebotham & Heron, 2003), greater percentage placed in foster care (Gorham, 1997; Needell, & Barth, 1998) higher incidents of criminal activity and typically less financially productive careers (Gorham, 1997; Grogger, 1997).

These societal indicators reveal the urgency of the crisis affecting the most vulnerable of our population. It is imperative that researchers seek the most promising paths to reversing the rates of poor pregnancy outcomes.

Statement of the Problem

The solution to poor pregnancy outcomes such as preterm delivery, low birth weight and infant mortality has long eluded social epidemiologists, public health officials, and social scientists as well as medical practitioners. Research literature is abundant with theories and data about the causes of negative pregnancy outcomes. Nevertheless no single explanation has been discovered. Despite advances in medical technology, increases in government social programs

and dollars spent, the high rates of preterm delivery, low birth weight and infant mortality have not been overcome (Rosenblatt, 1989). Nor is the United States keeping pace with other industrialized nations in reducing poor pregnancy outcomes (HRSA, 2006; Rosenblatt, 1989).

To join the quest for answers, this study explores an aspect of social capital, a construct that has been found to influence health outcomes. Decades of research have established the precedence of social capital in affecting health outcomes (Abernethy, 1973; Ahern, Hendryx, & Siddharthan, 1996; Berkman & Syme, 1979; Cobb, 1976; Cohen, Doyle, Skoner, Rabin & Gwaltney, 1997; House, Landis & Umberson, 1988; Kawachi, Colditz, Ascherio, Rimm, Giovannucci, Stampfer, & Willett, 1996; Kawachi, Kennedy, Lochner & Prothrow-Smith, 1997; Nuckolls, Cassel & Kaplan, 1972; Roberts, 1997; Wolf & Bruhn, 1993). There are currently no studies however, that evaluate how the maternal level of social capital ultimately influences pregnancy outcomes. The vast majority of research on pregnancy outcomes has examined maternal risk factors (Reichman & Nepomnyaschy, 2008). An extensive body of literature also addresses how maternal social support networks affect pregnancy outcomes (Abernethy, 1973; Nuckolls, Cassel, Kaplan, 1972; Roberts, 1997), but to date this researcher has not found any studies that examine whether maternal level of social capital influences pregnancy outcomes. The gap in empirical research on the possible link between maternal level of social capital and pregnancy outcomes is addressed by this research.

To explore whether a causal link exists between the level of maternal social capital and the pregnancy outcome, pregnant women who were at high risk for poor outcomes were selected as the study group, from participants in the Orange County, Florida Healthy Start program. Surveys of the study group of mothers sought to quantify how maternal level of social

capital contributes to the pregnancy outcomes of preterm delivery, low birth weight and/or infant mortality.

If a study establishes a relationship between maternal level of social capital and the subsequent pregnancy outcome, a reasonable expectation would be for public health officials and government social programs to reframe how social services are delivered to high-risk pregnant women. An empirically established link would define a relevant direction for governments to take when supporting social programs to reduce the number of babies who are born preterm, born with low birth weight or perhaps die in their first year. An additional benefit would be to add empirical evidence that the improvement of communities' social capital demands attention from public health officials, public administrators and elected officials. The present study addresses the first link in that chain.

Historical Review: Pregnancy Outcomes in the United States

Historically, much has been done to improve pregnancy outcomes and save the lives of infants in their first year. In 1900 infant death resulted primarily from poor sanitary conditions that produced infectious diseases (Garner, 1999). Over one hundred years later with greatly improved sanitary conditions, the development of contraceptives and vast medical advances in drug therapy and life-saving devices (McClintock, 1997), two of the most prominent causes of infant death in the United States now are preterm delivery and/or low or very low birth weight (Alexander, Kogan, Himes, Mor & Goldenberg, 1999; Garner, 1999; Vangen, Stoltenberg, Skjaerven, Magnus, Harris & Stray-Pedersen, 2002; Wilcox, 2001).

It is important to note that the primary cause of poor birth outcomes varies across ethnic and racial groups (Garner, 1999; HRSA, 2006). As of 2002, the top five causes of infant

mortality were ranked as: “1) congenital malformations, 2) preterm birth/low birth weight, 3) sudden infant death syndrome, 4) maternal complications, and 5) cord complications. Congenital malformations, the leading cause of infant mortality, contributed to 20 percent of all deaths” (HRSA, 2006, p. 12). Although birth defects are a primary cause of infant deaths (Garner, 1999), they are not addressed in this paper.

However in the past decade, the second most frequent cause of infant deaths has become birth weights less than 750 grams (1lb. 10 ½ oz.), which is typically the result of preterm birth (HRSA, 2006; MacDorman et al., 2005; Matthews, Menacker, MacDorman, 2003).

Unfortunately, the majority of these infants do not live to their first birthday. Within certain ethnic populations in the United States, the major negative birth outcome is low or very low birth weight, which significantly increases the risk of infant death (Devaney, Howell, McCormick, & Moreno, 2000; Strobino et al., 1995).

Even though medical advances have dramatically increased the survival rate for infants, there are limits; in particular they cannot completely compensate for negative behavioral impacts of the mother on her unborn infant. Therefore, social programs that target obstacles facing pregnant women are important in the battle to reduce poor birth outcomes such as preterm delivery, low birth weight and infant mortality (Alsup, 1995; Boroff & O’Campo, 1996; McClintock, 1997).

Social programs aimed at improving birth outcomes have been a part of United States policies since the early twentieth century (Garner, 1999; Straughan, 2001). These policies and programs have used two distinct approaches to improve the postnatal health of infants. The first approach has used social programs intended to diminish structural and attitudinal barriers. Examples of structural barriers to prenatal health care are lack of adequate transportation, lack of

child care for the children at home, inability to miss work/school, uncertainty about where to receive prenatal care, inconvenient appointment or operating times, distrust/dislike of healthcare providers, difficulty accessing Medicaid and limited service areas (Alsup, 1995; Boroff & O'Campo, 1996; McClintock, 1997; Wan & Lin, 2003). Attitudinal barriers include unwanted pregnancy, feelings of denial or ambivalence, unawareness of pregnancy, depression, reluctance to tell the father and fear of detection of illicit drug use (Alsup, 1995; Boroff & O'Campo, 1996; McClintock, 1997). While social programs targeting such barriers have had some success in improving birth outcomes, they have not succeeded in bringing the United States to the same level as other industrialized nations (HRSA, 2006).

The second approach to improving the postnatal health of infants in the United States has been advances in medicine that have dramatically reduced adverse postnatal outcomes such as infant mortality (Kliegman, 1995; LaVeist, 1993; Leviton, 1995; McClintock, 1997). These advances include the widespread use of vitamin supplements and folic acid, antibiotics and surfactants, along with an increase in neonatal intensive care units (Reducing infant mortality, 1991).

Other research has suggested that medical technology, advances in pharmacology and increased use of contraceptives and family planning are responsible for any decline in adverse outcomes. Many authors claim the decline to be a direct result of improved medical technology (Alsup, 1995; Kliegman, 1995; Kramer, Platt, Yang, Joseph, Wen, Morin & Usher, 1998; Rosenblatt, 1989; Shiono & Behrman, 1995). Others attribute improvement to life-saving drugs such as corticosteroids and surfactants (Strobino, O'Campo, Schendorf, Lawrence, Oberdorf, Paige, & Guyer, 1995). These studies show that neonatal mortalities related to lung development or respiratory problems have been reduced by 30% to 60% (Garner, 1999).

Another reason offered by Strobino et al., (1995) is the increased use of contraceptives and access to family planning services beginning in the 1970s. Hence, Kramer et al., (1998) conclude that declines in poor birth outcomes over the last few decades are due to the aforementioned factors and not to government health care or social programs.

Rosenblatt (1989) however asserted the Perinatal Paradox which describes the incongruity of increased medical technology and expanded social programs with only a disappointingly modest decline in the incidence of low birth weight and infant mortality. This outcome is not consistent with inputs (Kliegman, 1995; Rosenblatt, 1989).

Historical Review: A Maternal and Child Health Program Is Born

In the late 1980s, during the era of re-inventing government in public administration (Kaboolian, 1998; Kettl, 1993) the U.S. Health Resources and Services Administration (HRSA) was faced with the reality of the Perinatal Paradox (Garner, 1999; Kliegman, 1995; Rosenblatt, 1989). When reviewing the numbers and percentages of infant deaths in the United States from 1984 through 1988, HRSA officials realized the current policies and government programs targeted at reducing poor birth outcomes were not working (McCann, Young, Hutten, Hayes & Wright, 1996). In an effort to reverse the negative trend of birth outcomes, HRSA officials designed a new innovative maternal and child health program (Devaney, Foot, & Chu, 1999; Devaney et al., 2000; McCann et al., 1996). This demonstration program targeted selected areas of the country with a goal of reducing infant mortality in those areas by 50 percent over a five year period (McCann et al., 1996). The new program aimed to capitalize on the current notions of re-inventing government (Kettl, 1993) and therefore incorporated privatization, public-private partnerships and healthcare coalition building to form a new service delivery model to meet the

HRSA goals (Devaney et al., 2000).

The new federal grant-funded program was “Healthy Start” (Harrington, Foot & Closter, 1998). Proposed initially during the Bush Administration in the early 1990s, Healthy Start from its inception focused on changing whole systems of care to increase the use of the currently provided prenatal services (Devaney et al., 1999) by addressing the obstacles cited by pregnant women for their not seeking prenatal care (Howell et al., 1997). The aims were both to approach maternal and child health programs from a community viewpoint and to encourage pregnant women to obtain health care so that preterm delivery, low birth weight and infant mortality could be reduced. The first programs sought to influence families to change their “home environment to be more conducive to a healthy start for infants” (Howell et al., 1997).

In creating this new delivery system for care, policy makers sought to be cognizant of the barriers to prenatal care cited by pregnant women (McClintock, 1997). Mullner, Young & Andersen (1988) presumed the most cost-effective method for new delivery systems of care would be to form healthcare coalitions across the country. They predicted that the healthcare coalitions would evolve into public-private partnerships that maintained a membership base and were assisted and supported by local community networks becoming influential leaders in changing whole systems of health care. Thus, as the public administration concepts based on “re-inventing government” that Kettl propounded in 1993 took root, one of the sprouts was the Healthy Start program with a goal of reducing such poor birth outcomes as preterm delivery, low birth weight, and infant mortality.

Related Research

Social forces, social networks, social support, social relationships, and social cohesion - these are all constructs that researchers have analyzed in relation to health outcomes. Those aforementioned terms, while not all defined exactly the same in the literature are extremely similar constructs based on the ties and relationships people develop that provide emotional and physical support shown to improve health outcomes (Abernethy, 1973; Ahern et al., 1996; Berkman & Syme, 1979; Cobb, 1976; Cohen et al., 1997; House, Landis & Umberson, 1988; Kawachi, Colditz, Ascherio, Rimm, Giovannucci, Stampfer, & Willett, 1996; Kawachi, Kennedy, Lochner & Prothrow-Smith, 1997; Nuckolls, Cassel & Kaplan, 1972; Roberts, 1997; Wolf & Bruhn, 1993). These constructs and the research that supported their link to health outcomes evolved to encompass what later many researchers would term social capital (Bourdieu, 1986; Putnam, 2000).

Many researchers have agreed that social networks influence health outcomes not only at the community level but also at the individual level (Ahern, et al., 1996; Berkman & Syme, 1979; Cohen et al., 1997; House et al., 1988; Kawachi et al., 1996; Kawachi et al., 1997). Lynch, Due, Muntaner and Davey Smith (2000) propose that social support at the community level is actually social capital. This point has also been made by Putnam (2000) in a discussion of social capital.

According to Wolf and Bruhn (1993), it is the individual's risky behavior patterns that have been the focus of research on causes of disease and illness. However, "years of research have demonstrated that factors other than individual lifestyle play a major role in creating risk for individuals" (Ervin, Nelson, & Sheaff, 1999, p. 25). A point that Wolf and Bruhn (1993) stress is that the research focus should shift to how "social forces in family and community"

affect disease and illness (p. 3). They contend that the level of cohesiveness within communities has more effect on a person's health than engaging in risky health behaviors does.

Ahern et al (1996) reached similar conclusions after conducting a survey in Florida. They found that "perceptions of problems with health experiences are correlated with (a) lack of sense of community" (p. 919). Their results also indicated that those who reported problems with their health care were more likely to live in highly transient communities where social interaction occurred mostly among strangers.

Lomas (1998) describes the "penultimate intervention approach" to improving health as being "home visitor programs" (p. 1183). The author develops a continuum of points of health care intervention. Using heart disease as the health concern focus, he makes the argument that family and support services through home visits is the second highest activity for improving health over the long term. The highest possible activity according to the continuum model of Lomas (1998) is to create social cohesion by subsidizing clubs and assisting programs that reduce income inequality. Lomas (1998) views social cohesion as emanating from family support services, home visits, and club memberships. According to Granovetter (1973), however, the ties generated from such activities would be relatively weak; nevertheless "weak ties play a role in effecting social cohesion" (Granovetter, 1973, p. 1373).

In a logical progression from Granovetter (1973), Birkel and Reppucci (1983) demonstrated that weak social networks positively influence an individual's information seeking and use of social and health services. The term social cohesion is used by both Wolf and Bruhn (1993) and Lomas (1998), with Lomas (1998) acknowledging that the concepts of Wolf and Bruhn (1993) are the same as Putnam's (1995) social capital term. Ferlander (2007), however, argues that there are differences between the terms which he seeks to clarify by stating that

“social capital comprises several dimensions, while social cohesion and a sense of community can be regarded as outcomes, as well as sources, of some of them” (p. 115).

In short, having access to a cohesive social network has been shown to improve individual’s health (Ahern et al., 1996; Berkman & Syme, 1979; Cohen et al., 1997; House et al., 1988; Kawachi, et al., 1996; Kawachi et al., 1997). In particular, pregnant women who are a part of a cohesive social network have been shown to be cocooned from otherwise high-risk pregnancy outcomes (Balaji, Claussen, Smith, Visser, Johnson Morales & Perou, 2007 (mental health); Nuckolls, Cassel, & Kaplan, 1972 (pregnancy complications); Savage, Anthony, Lee, Kappesser & Rose, 2007). Cobb (1976) points out how important social support is when he states, “social support begins in utero, ... best recognized at the maternal breast, and is communicated in a variety of ways, but especially in the way the baby is held (supported)” (p. 301). Nuckolls et al., (1972) concluded that pregnant women who had been exposed to excessive life-changing experiences manifested significantly fewer pregnancy complications if they had access to a strong social support network. In the Nuckolls et al., (1972) study, among women who suffered high life stressors coupled with low levels of social support, 91% had pregnancy complications (Cobb, 1976). In contrast, among women with high life stressors but high levels of social support, only 33% had pregnancy complications. Moreover, the telling result was that among women who had few life stressors but also low levels of social support, 49% had pregnancy complications (Cobb, 1976). The conclusion appears to be that high levels of stress are not so much the determinant of pregnancy outcomes as is social support.

Roberts (1997) states that social support for the mother can be provided by the “mother’s existing support network or provided as a clinical intervention” (p. 597). Roberts (1997) also concluded that the presence of social support positively influences birth weight and postnatal

maternal health. Thus, tracing the linkage of social support and networks back to pregnancy and Healthy Start, one can say that a connection could be made between positive pregnancy outcomes and the level of maternal social forces in family/ community/ program intervention. If the Lomas (1998) health intervention continuum is the model, the Healthy Start program could be its practical application. By providing home visits to pregnant women at least monthly with health information, monitoring and emotional support, the Healthy Start program, through “weak ties,” is fostering a high rate of social cohesion. Thus, from previous research (Roberts, 1997) it appears possible that the social interaction and networking provided by Healthy Start Care Coordinators could provide more long-term benefits to maternal and infant health than even is derived from standard medical intervention.

Participation in the Healthy Start program may raise levels of maternal social capital by providing access to the networks and resources necessary for a healthy pregnancy. According to Bourdieu (1986), an individual has a high level of social capital if he/she can access resources that are linked through being part of a network. Portes (1998) suggests that social capital has come to mean ‘the ability to secure benefits through membership in networks and other social structures’ (Hawe & Shiell, 2000, p. 872). Therefore, on the basis of Bourdieu’s (1986) and Portes’ (1998) findings, it appears that resources (services/ benefits) provided by participation in the Healthy Start program (membership in network) increase maternal social capital, which in turn improves maternal health outcomes. Improved maternal health translates into healthier babies.

Theoretical Framework for the Proposed Study

Thus the concepts of social support, social networks, and social cohesion by extension have been researched with reference to how they affect women during pregnancy (Balaji et al., 2007; Nuckolls et al., 1972; Savage, Anthony, Lee, Kappesser & Rose, 2007). Although researchers have examined the links between the separate components that comprise social capital and pregnancy outcomes (Balaji et al., 2007; Barefoot et al., 1998; Hyypä & Mäki, 2001; LaVeist, 1992, 1993; Roberts, 1997; Rose, 2000; Savage et al., 2007) there is no literature that examines whether the maternal level of social capital influences pregnancy outcomes.

Social capital became a prominent construct in political science in the 1990s and early 2000. Recently researchers have increasingly related the construct to the health field (Hawe & Shiell, 2000; Kreuter & Lezin, 2002; Wang, Schlesinger, Wang, & Hsiao, 2008). Social capital has featured in the public health literature in four ways: “1) as an explanatory ‘pathway’ in the relationship between income inequality and health status; 2) as a factor in the study of social networks and health; 3) as a mediator of the performance of health policies or reforms; and 4) as synonymous with social deprivation or social cohesion in relationship with violence and crime” (Macinko & Starfield, 2001, p. 400). In this context social capital is a defensible variable for a research project that inquires whether low maternal social capital serves as a precursor to poor pregnancy outcomes.

One rationale for evaluating social capital with reference to poor pregnancy outcomes is offered by Lomas: “Put simply, individuals (and their ill-health) cannot be understood solely by looking inside their bodies and brains; one must also look inside their communities, their networks, their workplaces, their families and even the trajectories of their life” (Lomas, 1998, p. 1182). To find answers that have been elusive, sometimes it is necessary to look in a different

place. One such place might be Bourdieu's (1986) description of social capital "which forces us to consider not only the existence of community networks, but also the resources (potential and actual) possessed by the network and individual residents' abilities to draw upon the network for those resources in order to pursue a variety of goals... Bourdieu identifies resources linked to a network of relationships and implies the importance of access to resources through an individual's attachment to the network containing these resources. Similar to Bourdieu, Putnam also identifies social capital as inhered with social networks... However, he focuses more on trust and reciprocity that results from such social networks and the potential this trust and reciprocity have for mutual benefit" (Carpiano, 2006, p. 167-168).

Social capital as defined by Putnam (1995) is "the features of social life-networks, norms, and trust- that enable [people] to act together more effectively to pursue shared objectives" (p. 664-665). Crosby and Holtgrave (2006) view social capital similarly to Putnam (1995). They perceive it as a "construct comprised by a set of factors, including trust, reciprocity, and cooperation among members of a social network that aims to achieve common goals. The construct includes supportive interactions within and among families, neighborhoods, and entire communities" (p. 557). The process of how an individual intakes, processes and digests social capital has been depicted by Macinko and Starfield (2001) in an adaptation from Portes (1998) which is shown in Figure 1.

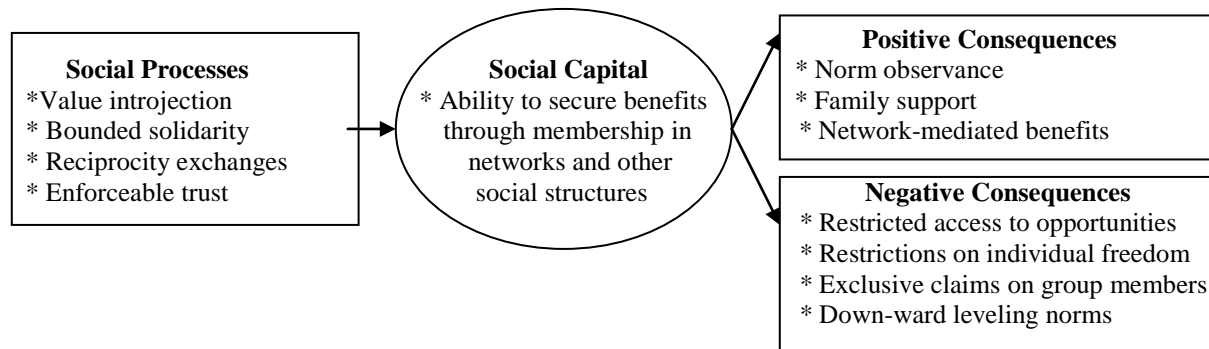


Figure 1: Social Capital – Individual-Level Causes and Consequences (Macinko & Starfield, 2001 as adapted from Portes, 1998).

Social capital as an individual characteristic most cogently addressed by Portes (1998), as a pathway either to positive or negative consequences from “the ability to secure benefits through membership in networks and other social structures” (Hawe & Shiell, 2000, p. 872). For Portes (1998), one positive consequence that could emerge from membership in networks and other social structures is better personal health. A negative consequence could be personal economic stasis if a member of the group tries to gain status but is held back by those of lesser capabilities.

Lochner, Kawachi and Kennedy (1999) disagree with Portes (1998), arguing that social capital is best examined at the community level. Since social capital can be a common good, Almedom (2005) also challenges the legitimacy, both theoretically and empirically, of measuring it at the individual level. While acknowledging the discrepancy of opinion, this paper views social capital at the individual level and seeks to measure maternal social capital in the sample population.

Putnam’s (2000) seminal work on levels of social capital compiles the negative consequences of low individual levels. Aggregating those data to the state level, Putnam (2000)

presents a state-by-state ranking of aggregated individual levels of social capital in graphic form, demonstrating that infants and children flourish in states with high social capital index. From the scoring of each state and how it ranks in its social capital index, Putnam (2000) shows that some states consistently rank in the bottom quartile for all measures of child welfare. Putnam's graphic depiction reveals that states with a low social capital index are the same states with higher rates of low birth weight babies, infant mortality, deaths of children ages 1-4, teenage pregnancy, child abuse, lower educational attainment, teenage school dropouts, juvenile crime, children living in poverty, and higher percentages of families with children that are headed by a single parent (Putnam, 2000).

Florida can be used as an example of Putnam's (2000) contention that children do not flourish in states with low social capital indices. As shown by Putnam's (2000) research, Florida ranks in the bottom quartile for levels of social capital. Florida also ranks in the bottom quartile for poor birth outcomes: preterm delivery, low birth weight and infant mortality. Thus, Florida appears to have underinvested in social capital with the result that negative equity is manifested in its high rates of poor birth outcomes (Putnam, 2000).

The work of Kawachi, Kennedy, Lochner, & Prothrow-Smith (1997) makes a determination similar to Putnam's (2000) in concluding that community-level social capital in concert with income inequality could predict 58% of the variance in total mortality and 42% of the variance in infant mortality. Although Putnam (2000) and Kawachi et al., (1997) published work that identifies a link between aggregated national and state-level data about social capital and pregnancy outcomes, a gap remains in the data about the potential link at the individual maternal level. Hence the findings from Putnam (2000) and Kawachi et al., (1997) are the basis from which this research reviews whether social capital influences pregnancy outcomes at the

individual level the way it does at the community level. The purpose of this research is to determine whether the maternal level of social capital is causally related to pregnancy outcomes. The research explores the relationship of social capital levels of high-risk pregnant women participating in the Orange County, Florida Healthy Start program and their birth outcomes.

Research Questions

The purpose of this research is to examine three different research questions.

Research Question One

What is the relationship between maternal risk factors and maternal social capital?

Position Statement for Research Question One

The risk factors of race and education have been shown to be important predictors of interpersonal trust (Putnam, 2000). For example, higher levels of education are positively associated with interpersonal trust, and Whites are considered to be more trusting than Blacks (Putnam, 2000). In addition, some types of civic participation have been associated with higher levels of trust, reciprocity, cultural norms and enhanced cooperation (Putnam 1995, 2000). However, civic activities typically require time, money and skills not easily available to low socio-economic individuals (Figure 2).

Research Question Two

What is the relationship between maternal social capital and pregnancy outcomes?

Position Statement for Research Question Two

To date, this researcher has identified a total of four studies (Kawachi et al., 1997; Moss, 2002; Putnam, 2000; Veenstra, 2002) on the effect of social capital on pregnancy outcomes. All four studies reviewed the data on social capital and pregnancy outcomes at the aggregated level yielding mixed outcomes. Two of the studies found significant associations between community level social capital and aggregated pregnancy outcomes (Kawachi et al., 1997; Putnam, 2000), one study found no significant relationship between the constructs (Veenstra, 2002) and one study found a significant relationship only between those neighborhoods with high levels of social capital and low infant mortality rates (Moss, 2002).

Putnam (2000) contends that infants and children flourish in states with a high social capital index. As noted, Kawachi et al., (1997) made a similar finding; they concluded that community social capital levels operating in concert with income inequality could predict 58% of the variance in total mortality and 42% of the variance in infant mortality. However, in a Canadian study reviewing the rate of low birth weight, Veenstra (2002) found no relationship with an aggregated social capital index. Moss (2002), in a review of census tract data to evaluate the relationship between neighborhood social capital and neighborhood infant mortality rates, found that only for those neighborhoods with high social capital levels was there a mediating effect. Thus of the four studies that research the link between social capital and pregnancy outcomes (Kawachi et al., 1997; Moss, 2002; Putnam, 2000; Veenstra, 2002), two have identified a link between aggregated national and state-level data and pregnancy outcomes; the gap remains concerning a link at the individual maternal level. The findings from Putnam (2000) and Kawachi et al., (1997), however, are the basis for this study of the possible influence of maternal social capital levels on pregnancy outcomes (Figure 2).

Research Question Three

What is the relationship between maternal risk factors and pregnancy outcomes?

Position Statement for Research Question Three

Some of the demographics linked to poor pregnancy outcomes that are perceived as contributing risk factors are the mother's race, age, education, income and housing status (Devaney et al., 2000; Howell, Devaney, Foot, Harrington, Hill, McCormick, Schettini, Schwalberg & Zimmerman, 1997; HRSA, 2006; Lee et al., 2009). Women with such high risk demographics have an increased chance of delivering a baby that is preterm or has a low birth weight or ultimately an infant death (Garner, 1999; HRSA, 2006; McClintock, 1997).

One risk factor that dramatically affects pregnancy outcome is the mother's use of tobacco and is twice as likely to have her infant die post delivery (HRSA, 2006; Klerman, Spivey & Raykovich, 2000; Phares, Morrow, Lansky, Barfield, Prince, Marchi, Braveman, Williams & Kinniburch, 2004; Ross, Swensen & Murphy, 2002; Tuthill, Stewart, Coles, Andrews, & Cartlidge, 1999). Other risk factors for a poor pregnancy outcome are: mother's use of illicit drugs (Devaney et al., 2000); mother's periodontal disease (HRSA, 2006; Jared & Boggess, 2008); presence of bacterial vaginosis (BV) and/or chorioamnionitis (Kramer et al., 2001; Myslobodsky, 2001); inadequate intake of folic acid during pregnancy (Berry, Li, Gindler, Liu, Zheng, Correa, Wang, Wong, Wang, 2001); chronic and acute stressors (Cassel, 1976; Cobb, 1976; Copper et al., 1996; Kramer et al., 2001; Lobel et al., 1992; Newton & Hunt, 1984; Nordentoft et al., 1996; Nuckolls et al., 1972; Orr, James, Miller, Barakat, Daikoku, Pupkin, Engstrom & Higgins, 1996); lack of social support (Balaji et al., 2007; Cobb, 1976; Nuckolls, Cassel, & Kaplan, 1972; Roberts, 1997; Savage, Anthony, Lee, Kappesser & Rose, 2007);

community or domestic violence, homelessness, sexually transmitted diseases and little to no prenatal care (Devaney et al., 2000; Savage et al., 2007).

Research Hypotheses

Hypothesis One

H₁: Maternal levels of social capital surveyed during the prenatal period will be low.

Position Statement for Hypothesis One

Women who are more likely to participate in “prevention-oriented human service programs” (Birkel & Reppucci, 1983, p. 185) generally have sparse or less dense social networks. An individual who has sparse social networks is likely to have a low level of social capital (Putnum, 2000). Therefore, the expectation is that women who enter the Healthy Start program have sparse social networks and low levels of social capital.

Hypothesis Two

H₂: There is an inverse relationship between maternal level of social capital and Healthy Start program completion.

Position Statement for Hypothesis Two

According to Birkel and Reppucci (1983) and previous studies of low-income and/or high-risk populations, those who have sparse social networks of family and friends are more likely to use social and health services programs; they are more likely to “connect with formal agencies and professionals than would individuals in tight-knit networks” (p. 188). Moreover, the greater the network density, the more likely the woman is to drop out of the social service

program (Birkel & Reppucci, 1983). Therefore, the expectation in this study is that women with a higher level of social capital as compared with the group average will be more likely to drop out of the Healthy Start program prior to completion (Figure 3).

Conceptual Models

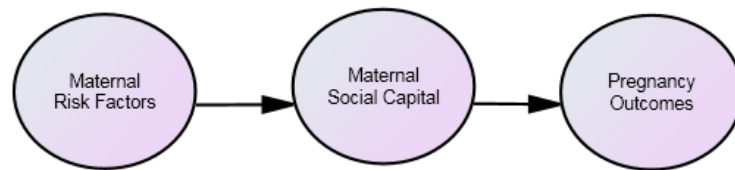


Figure 2: Research Questions 1-3: Conceptual Model of Maternal Risk Factors, Maternal Social Capital and Pregnancy Outcomes

Hypothesis 1: Does not require a conceptual model since it assesses whether the level of social capital is high or low.

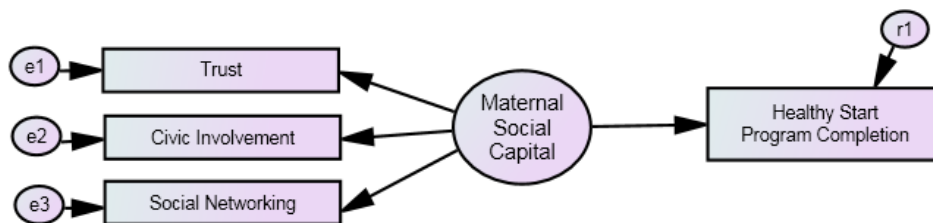


Figure 3: Hypothesis 2: Conceptual Model of Maternal Social Capital and Healthy Start Program Completion

Summary

In summary, poor pregnancy outcomes are viewed as an international indicator of the quality of the food and water, housing and clothing, health care, and education that are available

to a population (HRSA, 2006; Reidpath & Allotey, 2003). Given that knowledge, it is unacceptable the United States has not kept pace with the declines achieved by other industrialized nations in infant mortality rates. For the United States to do better, research that looks beyond solely medical factors is necessary. Research can no longer assume that people are biological islands. It has been shown that infants while still in utero are influenced by the social networks and environmental factors shaping the daily lives of their mothers and those in their community (Kawachi et al., 1997; Nuckolls et al., 1972; Putnam, 2000). Therefore, this research surveyed women participating in a Florida Healthy Start program to assess their social capital levels and subsequent pregnancy outcomes, and whether a causal link exists.

CHAPTER TWO: LITERATURE REVIEW

This chapter presents a theory and literature review that supports use of the exogenous independent variables of maternal social capital and the endogenous dependent variables of pregnancy outcomes. The characteristics of maternal social capital are: trust of people in general, trust of people in the neighborhood, trust in Healthy Start Care Coordinators, perception of benefit by program participation, amount learned about maternal and child resources, number of times program knowledge was shared with others, worked on a community project, volunteered, had friends over home, attended religious services, attended school events, attended children's activities, visited a salon, movie, watched television, attended a festival/parade, sports event, shopping mall, health fair/health seminar, used email, text messaging, chat room discussion, use of blog, and MySpace or similar website. The characteristics of pregnancy outcomes are: access to Healthy Start services, birth weight, gestational age, type of delivery, APGAR score, health status of the infant 28 days post-delivery, and whether an appointment with a pediatrician had been scheduled.

The main purpose of this study is to examine whether there is a link between maternal level of social capital and pregnancy outcome. Studies have established a casual link between social capital and health status (Putnam, 2000; Wan & Lin, 2003) as well as a causal link between health status and pregnancy outcomes (Hueston & Kasik-Miller, 1998; Jesse & Alligood, 2002; McKee et al., 2001). There also has been a link established between the individual components Putnam (1995, 2000) uses to constitute social capital and pregnancy outcomes. For example, trust (Kawachi et al., 1997), social networks (Balaji et al., 2007; Collins et al., 1993), and cultural norms (Savage, Anthony, Lee, Kappesser, & Rose, 2007) have

independently been linked to pregnancy outcomes. The only studies identified that link pregnancy outcomes and social capital are directly based on aggregated data (Kawachi et al., 1997; Moss, 2002; Putnam, 2000; Veenstra, 2002); nothing in the extant literature examines the relationship between maternal level of social capital and subsequent pregnancy outcome. The purpose of this literature review is to demonstrate the support for an analytic framework as the foundation for the research questions and hypotheses of this study.

The literature review: 1) identifies the empirical research on these pregnancy outcomes: preterm birth, low birth weight and infant mortality, in certain groups of women in terms of their risk factors; 2) identifies and analyzes the literature on social capital in general and as related to health; 3) identifies and analyzes the literature on those factors similar to and the same as social capital that have been related to pregnancy outcomes; 4) reviews the history of the maternal and child health care program Healthy Start, since the data for this project were collected from a program in Florida. In concluding the literature review, the construct of social capital and its impact on high-risk pregnancy outcomes is developed.

Pregnancy Outcomes and Maternal Risk Factors

For the purposes of this study, pregnancy outcomes discussed are access to Healthy Start services, preterm birth, low birth weight, infant mortality, type of delivery, APGAR score, and health status of the infant 28 days post-delivery, and scheduled appointment with a pediatrician. Genetic birth defects, sudden infant death syndrome and other such outcomes are not addressed. The following sections cover preliminary factors that lead to poor pregnancy outcomes.

The health of a woman prior to pregnancy and the prenatal care and nutrition she receives has substantial impacts on the pregnancy outcome (Boroff & O'Campo, 1996). Some

demographics have been linked to poor pregnancy outcomes as contributing risk factors: mother's race, age, education, income and housing status (Howell, Devaney, Foot, Harrington, Hill, McCormick, Schettini, Schwalberg & Zimmerman, 1997; HRSA, 2006; Lee et al., 2009). One factor that dramatically affects pregnancy outcomes is the mother's use of tobacco (HRSA, 2006; Klerman, Spivey & Raykovich, 2000; Phares, Morrow, Lansky, Barfield, Prince, Marchi, Braveman, Williams & Kinniburch 2004; Ross, Swensen & Murphy, 2002; Tuthill, Stewart, Coles, Andrews, & Cartlidge, 1999). The infant of a woman who smokes during pregnancy is twice as likely as infants of those who do not smoke to die post-delivery (Klerman et al., 2000). Other behaviors of the mother such as use of illicit drugs as well as victimization by domestic violence are also seen as risk factors for a poor pregnancy outcome (Devaney et al., 2000). Numerous other maternal risk factors have been identified: periodontal disease (HRSA, 2006; Jared & Boggess, 2008); presence of bacterial vaginosis (BV) and/or chorioamnionitis (Kramer et al., 2001; Myslobodsky, 2001); inadequate intake of folic acid during pregnancy (Berry et al., 2001); chronic and acute stressors (Cassel, 1976; Cobb, 1976; Copper et al., 1996; Hunt, 1984; Kramer et al., 2001; Newton & Lobel et al., 1992; Nordentoft et al., 1996; Nuckolls et al., 1972; Orr, James, Miller, Barakat, Daikoku, Pupkin, Engstrom & Higgins, 1996); and lack of social support (Balaji et al., 2007; Cobb, 1976; Nuckolls, Cassel, & Kaplan, 1972; Roberts, 1997; Savage, Anthony, Lee, Kappesser & Rose, 2007).

According to researchers, the following elements are likely to characterize the situation of a woman at risk of a poor pregnancy outcome: pregnancy in unplanned, she is a member of an ethnic minority, she is surviving at least 125% below the federal poverty level, she lives in an economically depressed area, she is single and/or she is less than 25 years old (Devaney et al., 2000; Howell et al., 1997; Lee et al., 2009).

In some areas, over 50% of the women at high-risk for preterm delivery, low birth weight or infant death have less than a high school education (Devaney et al., 2000), in contrast to the national average of 22.1% (Devaney et al., 2000). In addition, women at risk for a poor pregnancy outcome are more likely to have the following high-risk factors: community or domestic violence, homelessness, substance abuse or sexually transmitted diseases (Devaney et al., 2000).

Devaney et al., (2000) also describe women at risk as less likely to receive prenatal care in a private doctor's office, instead relying on local clinics or hospital emergency rooms; they also are more prone to consult a midwife for their prenatal care (Devaney et al., 2000).

Reaching this clientele is a challenge for prevention and education programs because the women are more prone to deny being pregnant and not seek prenatal care until the second or third trimester, or in many cases not at all (Devaney et al., 2000; Savage et al., 2007). Such a client is a high-risk candidate for delivering a baby that is preterm, has a low birth weight, or ultimately dies as an infant (Garner, 1999; HRSA, 2006; McClintock, 1997).

Entrance into prenatal care is crucial for avoiding negative pregnancy outcomes, particularly for Black women, for whom the risk of infant mortality is increased between four and five times if prenatal care is lacking (Devaney et al., 2000; HRSA, 2006). Although access to prenatal care has improved in many parts of the United States, barriers remain for large portions of the population (Boroff & O'Campo, 1996). According to Leopold and Langwell (1978), the individuals and families who do not use the medical care available are generally without a fulltime doctor, have less than a college education, belong to a minority, have lower incomes and live in an area where no doctors accept Medicaid.

Even when healthcare services have been available to pregnant women at no cost however, the rates of prenatal care have remained unsatisfactory (McClintock, 1997). Barriers to prenatal care cited by pregnant women fall into two distinct categories according to Boroff and O'Campo (1996), "operational/structural" and "motivational/attitudinal." Operational/structural barriers comprise transportation difficulties, no money to pay child care for the children, inability to miss work or school, uncertainty about where to receive health care, inconvenient appointment times and operating hours, distrust or dislike of healthcare providers, a sense of hostility from healthcare providers and difficulty enrolling in Medicaid (Alsup, 1995; Boroff & O'Campo, 1996; McClintock, 1997).

Motivational/attitudinal barriers cited in the literature are unwanted pregnancy, feelings of denial or ambivalence toward the pregnancy, unaware of the pregnancy, belief it is not important to see a healthcare provider, reluctance to tell the baby's father or the mother's parents and depression (Alsup, 1995; Boroff & O'Campo, 1996; McClintock, 1997; Savage et al., 2007). Particularly strong barriers to receiving prenatal care cited within certain demographics are detection of illicit drug use and the limited services provided for undocumented residents (McClintock, 1997).

An attitudinal barrier cited by Savage et al., (2007) among women who do not enter prenatal care is the hope of miscarriage. This unexpected finding came from women who said they knew that prenatal care and healthy birth outcomes are related, and that using alcohol, drugs and tobacco are detrimental to healthy outcomes. Savage et al., (2007) learned from their study group that in cases where the unplanned pregnancy was unwanted a woman might abstain from prenatal care and/or use alcohol, drugs and tobacco in hopes of a miscarriage (Savage et al., 2007).

Among minority and poor populations, the aforementioned barriers to prenatal care appear prevalent throughout the United States (Boroff & O'Campo, 1996). An evaluation of a Baltimore maternal and child health program offering prenatal services to at-risk women identified numerous problems that confirm many of the barriers to prenatal care cited here.

...waiting times to see the primary contact generally ranged from 30 minutes to more than an hour; most clinics were unable to provide routine nutrition and health education to every woman, and the task usually was left to the individual practitioner; some clinics offered unsupervised play areas, but only one provided constant supervision; there was little emphasis on involving male partners in the pregnancy or caring for infants; prenatal providers usually inquired about the selection of a pediatrician, but there was limited follow-up to ensure prenatal contact with the pediatrician; pediatric providers rarely asked and informed about family planning, except among adolescent patients; postpartum visits were scheduled for 6 weeks at the earliest and had a low compliance rate; and finally, no provider had the staff resources to offer home visiting and patient follow-up to at-risk patients. (Boroff & O'Campo, 1996)

Pregnancy Outcome: Low Birth Weight

Since the early twentieth century the United States maternal and child health care policy has focused on ways to improve birth weight, because of its high correlation with infant morbidity and mortality (Raykovich, McCormick, Howell & Devaney, 1996; Straughan, 2001; Vangen, Stoltenberg, Skjaerven, Magnus, Harris & Stray-Pedersen, 2002; Wilcox, 2001). The way birth weight has been viewed and studied, however has changed over the decades. In 1961 the "World Health Organization recommended that LBW (low birth weight) no longer be used as the official definition of prematurity... as researchers began to recognize that LBW and preterm are not synonymous" (Wilcox, 2001, p. 1234).

Viewing birth weight as its own birth outcome category has led to extensive research into the causes, risk factors and predeterminants that have life course consequences. According to Wilcox (2001), birth weight would not have come into its own researched category were it not

inversely related to infant mortality. The connection between birth weight and infant mortality has remained constant regardless of gestational age (Wilcox, 2001).

Infants are classified having low birth weight if born weighing less than 2,500 grams (5 lbs. 8 oz.). Low birth weight has been separated into two categories: low birth weight (LBW) and very low birth weight (VLBW). Infants born weighing between 2,500 grams (5 lbs. 8 oz.) and 1,500 grams (3 lbs. 5 oz.) are classified as having low birth weight; those weighing less than 1,500 grams (3 lbs. 5 oz.) are classified as having very low birth weight (Devaney et al., 1999; Garner, 1999; McClintock, 1997; Paneth, 1995; Raykovich et al., 1996; Wilcox, 2001).

While the primary cause of infant death varies among populations (Garner, 1999; HRSA, 2006) within ethnic populations in the United States the major cause of infant mortality is low or very low birth weight (Lee et al., 2009; Mutale, Creed, Maresh & Hunt, 1991; Strobino et al., 1995). Most infant deaths are of infants born weighing 2,500 grams (5 lbs. 8 oz.) or less, to ethnic women with low socioeconomic status (McCann, 1994; Moreno et al., 2000; Newberger et al., 1976; Raykovich et al., 1996).

The same factors do not hold for nonnative-born infants. Black and Hispanic infants born outside the United States do not seem to be as vulnerable to low birth weight as do native-born infants (David & Collins, 1997). Researchers have surmised that the explanation could lie in lower stress levels; lower-fat diet; less use of tobacco, alcohol and illicit drugs; and stronger family networks (Alexander et al., 1999; David & Collins, 1997; McCloskey & Wise, 1999; Wasse, Holt & Darling, 1994).

Many determinants can influence birth weight; some of the most widely discussed in the literature are: race, education, income, vaginal infections, maternal birth weight, and smoking. Jesse and Alligood (2002) surmise that if the mother is Black and she lacks partner support she is

likely to deliver a low birth weight infant. In addition, bacterial vaginosis in the mother has been linked to both preterm delivery and low birth weight (Hillier, Nugent, Eschenbach et al., 1995).

Maternal birth weight has also been shown to be a precursor of low infant birth weight and preterm delivery. Women who were born at low birth weight or preterm are at significantly higher risk for having low birth weight or preterm infants than are women who were not (Coutinho, David & Collins; 1997; Porter, Fraser, Hunter, Ward & Varner, 1997; Sanderson, Emanuel & Holt, 1995; Wang, Zuckerman, Coffman & Corwin, 1995). For example, Klebanoff, Graubard, Kessel and Berendes (1984), comparing birth weights of women and their pregnancies found that those who weighed 4.0 to 5.9 pounds at birth had 3.5 times more risk for delivering a low birth weight infant. Sanderson et al., (1995), with similar findings reported also that even when Black women of low birth weight delivered a normal birth weight infant, the baby had a significantly greater risk of postneonatal mortality.

Of all the risk factors of low birth weight, the most modifiable is cigarette smoking which has been identified as the cause for up to 20% of the infants born with low birth weight (Shiono & Behrman, 1995). Low birth weight dramatically increases the risk of cerebral palsy (Ellenberg & Nelson, 1979; Paneth, 1995; Odding et al., 2006; O'Shea, 2008), brain damage, lung and/or liver disease (Hack et al., 1994; Kraybill, Bose, & D'Ercole, 1987; Paneth, 1995; Shiono & Behrman, 1995); cognitive developmental problems (Anderson et al., 1997; Hack, Klein & Taylor, 1995; Lee et al., 2009; Paneth, 1995); learning disabilities and attention deficit disorder (McCormick, Gortmaker & Sobel, 1990); deafness (Bergman et al., 1985); blindness (Gallo & Lennerstrand, 1991); epilepsy (Sun et al., 2008; Whitehead et al., 2006), child abuse (Sidebotham & Heron, 2003); and of being placed in foster care (Needell & Barth, 1998).

Empirical evidence is mounting that low birth weight has tremendous impact on the life

course of a person's health. Low birth weight has been linked to increased risk of developing diabetes, asthma, cancers, cardiovascular disease, high blood pressure, hearing or vision impairment, among other health disorders (Gillman, 2002; 2005; Hack et al., 1994; Wilcox, 2001).

While the vast majority of empirical research on low birth weight focuses on the risk factors of the race, education and socioeconomic status of the mother the accompanying discussions are often hollow, formulating ways to improve low birth weight as a construct that can be manipulated rather than considering the integral system of mother and infant. However, Roberts (1997) identified this integral connection by concluding that there is a linkage between the birth weight of Black infants and the social connectedness and support experienced by the mother. While Roberts (1997) does not mention social capital, his descriptions of what constitutes social connectedness and support equates to social capital. Therefore, his work is a linkage in the literature between birth weight and social capital.

One area that has been shown to significantly affect all pregnancy outcomes is participation in a prenatal home visitation program (Donovan, Ammerman, Besl, Atherton, Khoury, Altaye, Putnam & Van Ginkel, 2007; Norbeck, DeJoseph & Smith, 1999; Olds, Henderson, Tatelbaum & Chamberlin, 1986). In numerous studies the women and especially the Black women who participated in a prenatal home visitation program have had substantial improvement in birth outcomes (Donovan et al., 2007). In addition, the outcomes are long lasting, resulting not only in higher birth weights (Norbeck et al., 1999; Olds et al., 1986) and fewer preterm births but in lower infant mortality rates as well (Donovan et al., 2007). Moreover, the benefits extend far beyond the pregnancy. In a fifteen year follow-up study, children whose mothers participated in a home visitation program had fewer instances of running away and

behavioral problems; and as adults fewer arrests, convictions, violations of probation, lifetime sexual partners, less alcohol consumption and cigarettes smoked per day (Olds, Henderson, Cole, Eckenrode, Kitzman, Luckey, Pettitt, Sidora, Morris & Powers, 1998). Mothers enrolled in a home visitation program exhibit more use of prenatal care, more breastfeeding, reduced smoking, “decreases in reported and substantiated child abuse and neglect rates, fewer emergency department visits, fewer physical visits for treatment of accidents and poisonings and healthier subsequent pregnancies” (Donovan et al., 2007, p. 1150).

When a pregnant woman is enrolled in a prenatal home visitation program like Healthy Start, the collective resources of the program and collaborating partner agencies are available to her. She has entree to a social support network with all the resources and services that she was previously unable to access. In essence, the components that make social capital beneficial to health are superimposed on the experience of the pregnant woman. It is “precisely those ways in which the past leaves traces in the present and constrains our present actions and future options” that we study how organizations and their subset of maternal and child health programs leave a mark on pregnancy outcomes (Goodin (1996, p.30). Therefore, while social capital is not mentioned directly in pregnancy programs research, the connection with pregnancy outcomes is there in the literature.

Pregnancy Outcome: Preterm Birth

The pregnancy outcome of preterm birth or preterm delivery is commonly referred to as premature. The lifelong medical effects are severe (Ellenberg & Nelson, 1979; O’Shea, 2008) and any infant born at less than 37 completed weeks of gestation is classified as being preterm (Kramer, Goulet, Lydon et al., 2001). Because of life saving medical technology, preterm birth

is no longer automatically a death sentence. Nevertheless, the long-term consequences can be devastating. Gestational age is critical for fetal development; infants born preterm are at risk for cerebral palsy, developmental delays, mental retardation, seizure disorders, blindness, chronic lung problems and autism. (Ellenberg & Nelson, 1979; O'Shea, 2008; Petrini, Dias, McCormick, Massolo, Green & Escobar, 2009). Other consequences such as lower cognitive test scores and behavioral problems can also arise for children who were born preterm. Preterm birth has even a generational impact on the families and infants it affects in those women who were themselves preterm are at significant risk of delivering a preterm infant (Porter et al., 1997).

Another poor birth outcome commonly discussed in conjunction with preterm birth is small for gestational age (SGA) (Mutale, Creed, Maresh & Hunt, 1991). Though not every birth outcome of SGA is the same, the risk factors typically mirror those for preterm birth, with smoking identified as a dominant factor (Mutale et al., 1991).

Unfortunately, prematurity is a negative birth outcome that has increased by 25 percent since 1990 (Hamilton, Martin, & Ventura, 2009), accounting for almost 37 percent of all infant deaths in the United States (MacDorman & Matthews, 2008). Sadly, statistics also tell the story of infants who are dying with, in most cases, the cause left undetermined (Kramer, Goulet, Lydon et al., 2001; Paneth, 1995).

Some maternal characteristics that do seem to be causally linked to preterm and SGA births are: maternal or fetal stress, maternal infections, uterine bleeding and/or excessive uterine stretching and previous low birth weight baby (Mutale, et al., 1991). Environmental factors that have been associated with higher rates of prematurity are: late or no prenatal care, smoking, use of alcohol, illegal drugs, exposure to domestic violence, physical, sexual or emotional abuse, lack of social support and socioeconomic status (Cooper, Goldenberg, Elder, Swain, Norman,

Ramsey, et al., 1996; Kramer, Goulet, Lydon et al., 2001; Lobel, Dunkel-Schetter & Scrimshaw, 1992; Mutale et al., 1991; Newton & Hunt, 1984; Nordentoft, Lou, Hansen, Nim, Pryds, Rubin & Hemmingsen, 1996).

There is increasing empirical evidence of association between the mother's own birth weight and race, and her infant's risk of both prematurity and low birth weight (Coutinho et al., 1997; HRSA, 2006; Klenbanoff et al., 1984; Paneth, 1995; Porter et al., 1997; Sanderson et al., 1995; Wang et al., 1995). Maternal low birth weight seems to indicate an increased risk for infant's intrauterine growth to be reduced leading to a preterm birth. Moreover, the correlation appears to be independent of the risk level assigned during the pregnancy (Simon, Vyas, Prachand, David & Collins, 2006).

Jesse and Alligood (2002) concluded that a low level of self-esteem and use of drugs and alcohol placed a woman at higher risk for a preterm birth. Paneth (1995) concluded that race appears to be a significant predictor of preterm delivery, with Black women having a rate of preterm deliveries twice that of other races. Paneth (1995) also believed it is unclear why preterm birth is more prevalent in the United States than in most other industrialized countries, and the lead factor in infant mortality.

Pregnancy Outcomes: Infant Mortality

In 1913 in a report to Congress, Julia Lanthrop, the first chief of the United States Children's Bureau, quoted a British statistician as saying, "infant mortality is the most sensitive index we possess of social welfare" (Straughan, 2001, p. 339). The quotation is evidence for the long history of federal programs battling infant mortality. As a social issue, infant mortality was a rallying cry for women during the Women's Rights Movement of the early twentieth century.

Due to a national public relations campaign in 1920 sponsored by the U.S. Children's Bureau, women's magazines such as *McCall's*, *Ladies' Home Journal*, and *Good Housekeeping* ran articles deploring the high rates of infant mortality (Straughan, 2001). One such article stated that "nearly all babies who died in the United States each year could have been saved. They die from two causes, poverty and ignorance, and ignorance here is only another name for poverty" (Straughan, 2001, p. 343). The articles issued women a call to action to save the babies by lobbying Congress for improved maternal and child health (Straughan, 2001). During Congressional testimony in support of maternal and child health legislation, Dr. John A. Foote, a professor and physician described the deplorable lack of prenatal care available to women when he said, "the expectant mother in the barnyard gets far more attention and care than the one in the house" (Straughan, 2001, p. 347). Due to this type of testimony and the massive grassroots campaign of American women helped to pass the Sheppard-Towner bill in 1921 intended to reduce infant and maternal mortality rates through education and prenatal clinics. Earlier versions had been defeated in 1918 and 1920 but finally succeeded in 1921 despite vehement opposition from the mostly male medical profession and the American Medical Association (Straughan, 2001).

Infant mortality is the term for the total number of infant deaths, both neonatal and postneonatal, per 1,000 live births that occur before the first birthday (Garner, 1999; McClintock, 1997; National Center for Health Statistics 1995). Neonatal death occurs within the first 28 days of an infant's life; postneonatal death occurs after the first 28 days up to the first birthday (McClintock, 1997). As previously noted vitamin supplements, folic acid, antibiotics, surfactants, family planning, the use of contraceptives, medical advances in treating lung development and intensive care units for premature and low birth weight infants have

dramatically reduced infant mortality (Alsup, 1995; Kliegman, 1995; Kramer, Platt, Yang, Joseph, Wen, Morin & Usher, 1998; Reducing infant mortality, 1991; Rosenblatt, 1989; Strobino et al., 1995). Kramer et al., (1998) concluded that the declines in infant mortality in the previous decade were due to those advances, not social or government health care programs.

A high percentage of postneonatal deaths are classified as sudden infant death syndrome (SIDS). Although such infants are within normal birth weight ranges at the time of delivery, other risk factors appear to contribute to their deaths (Dwyer et al., 1999; McCloskey & Wise, 1999). Cigarette smoking by the mother has been linked to SIDS (McCloskey & Wise, 1999).

The characteristics of neonatal and postneonatal mortality in less industrialized countries diverge from those in the United States (McCloskey & Wise). For example, nearly two-thirds of the infant deaths are postneonatal, i.e. occur after the first month of life, and are related to poor nutrition, disease and unsanitary conditions (McCloskey & Wise). In contrast, in industrialized countries such as the United States two-thirds of the infant deaths are now neonatal deaths, i.e. occur within the first month of life, and are caused by premature birth and very low birth weight (McCloskey & Wise, 1999).

Comparison of the United States infant mortality rates with those of other countries shows clearly that it lags far behind most industrialized countries and its ranking has continued to slip (Williams, 1994). In 1950, the United States ranked 7th in the international community for infant mortality; by 1970, the ranking had slipped to 16th. By the early 1990's the United States ranking had fallen to as low as 25th in infant mortality, below that of several developing countries (McCloskey & Wise, 1999; Raykovich et al., 1996; Williams, 1994).

In the decade leading up to 2002, the United States ranking among industrialized countries in infant mortality fluctuated between 21st - 28th (Strobino et al., 1995), with about 7.0

infant deaths per 1,000 live births (Center for Disease Control, Health Statistics, Table 26, 1998; Center for Disease Control, Health Statistics, Table 25, 2005). Yet during that decade the United States had been spending about 12 percent of its gross national product on healthcare, more than any other nation (Strobino et al., 1995; Wegman, 1994).

From the 1980s, as the international community began dramatically reducing infant mortality rates, the United States did not keep pace (Badura, 1999). Neither the social programs developed under the Great Society (Garner, 1999; Raykovich et al., 1996) nor the expanded healthcare coverage for pregnant women under Medicaid (Devaney, Bilheimer & Schore, 1990; Devaney et al., 2000; Garner, 1999; Mamer, 1992) had the power to bring the United States infant mortality rates to levels comparable to those in other industrialized countries.

Infant mortality has long been acknowledged as an indicator of a society's health and overall well-being (Badura, 1999; Boroff & O'Campo, 1996; Collins & David, 1990; Flatow Culhane, 1999; Herman-Giddens, 1994; Lillie-Blanton et al., 1993; McCloskey et al., 1999; McCloskey & Wise, 1999; Shen & Williamson, 2001). The United States has lagged behind other industrialized countries since the 1910s (Baltay, McCormick & Wise, 1999; For women and infants, 1991; Liu, Moon, Sulvetta & Chawla, 1992; Straughan, 2001; Strobino et al., 1995; Williams, 1994).

Racial Disparity in Infant Mortality

In 1968, a report to President Lyndon Johnson from the U.S. National Advisory Commission on Civil Disorders famously stated, "Our nation is moving toward two societies, one Black, one White – separate and unequal" (LaVeist, 1993, p. 44). Such is the case with pregnancy outcomes in the United States; a racial and ethnic divide exists for all pregnancy

outcomes, with Black infants incurring an unequal portion of preterm births, low birth weights and infant mortality.

In particular, the primary cause of infant death varies across ethnic groups (Garner, 1999). For U.S.-born infants, the infant mortality rate is consistently higher for minorities than Whites (Alexander et al., 1999; Infant Mortality, 2002). However, U.S.-born Chinese, Japanese and Filipino infants have the lowest infant mortality rates (Alexander et al., 1999; National Center for Health Statistics, 1995). Though other U.S.-born ethnic groups have lower infant mortality rates than that of Whites, the standard used for comparison is Whites (National Center for Health Statistics, 1995).

The infant mortality rate for Blacks is far worse than that for any other ethnic group (Alexander et al., 1999; National Center for Health Statistics, 1995), which was documented as early as 1890 (Grant Bunch, 2000; Lane, Cibula, Milano, Shaw, Bourgeois, Schweitzer, Steiner, Dygert, DeMott, Wilson, Gregg, Webster, Milton, Aubry & Novick, 2001).

Infants of United-States-born Black women have on average twice the infant death rates of White infants and the rate can be as much as four to five times as high (Alexander et al., 1999; Chu & Reilly, 1992; Devaney et al., 2000; National Vital Statistics Reports, 2000; Saving the Children, 2000). In other words, as of 2002, for every 1,000 Black infants born, 14.4 died – as compared to 5.8 deaths for Whites. If the infant mortality rates of Black infants were reduced to that of Whites, the United States world ranking would change from 24th to 7th (Donovan et al., 2007). The high infant mortality rates among Black women seems to hold regardless of income, education level, marital status of the mother, or early entrance into prenatal care (Alexander et al., 1999; Grant Bunch, 2000; HRSA, 2006).

While overall infant mortality in the United States has decreased for Black infants the

improvement has lagged (Alexander et al., 1999; Collins & David, 1990; Kleinman & Kessel, 1987). Researchers have found no conclusive explanation (Grant Bunch, 2000; McCloskey & Wise, 1999).

Though in the United States Blacks and Hispanics have the highest rates of infant mortality (Johnson, 2000) that is not the case for infants of those groups born outside the United States (David & Collins, 1997; Landale, Oropesa & Llanes, 1999). A fact that may relate to that difference is that the primary cause of infant mortality in the United States is low birth weight and/or preterm birth (Devaney et al., 2000; Paneth, 1995). “Low birth weight is, in fact so directly related to neonatal mortality that the relative position of each state’s neonatal mortality rate can be predicted with reasonable accuracy from the proportion of low birth weight infants (those weighing less than 2,500 grams, or 5 pounds, 8 ounces, at birth) among live births” (Paneth, 1995, p. 20). Black and Hispanic infants born outside the U.S., however, do not seem to be as affected by low birth weights as do native-born infants (David & Collins, 1997). Researchers have surmised that contributing factors could be lower stress levels, lower-fat-diet, less use of tobacco, alcohol and illicit drugs and stronger family networks (Alexander et al., 1999; David & Collins, 1997; Landale et al., 1999; McCloskey & Wise, 1999; Wasse, Holt & Darling, 1994).

Krieger (1992) points out that poor pregnancy outcomes should not be viewed as a “minority” issue for if it is believed that only minorities have high rates of infant mortality, for example, then the White poor, are not considered. Nor should the problem be classified as a solely socioeconomic one, which would categorize women of lower income as having high-risk pregnancies due simply to their limited earning power (Krieger, 1992). In summary, while researchers have pinpointed the risk factors associated with poor pregnancy outcomes, they have

not been able to explain the ethnic disparity satisfactorily (Raykovich et al., 1996).

Maternal Stress Influencing Birth Outcomes in the United States

Determining how maternal stress levels predict birth outcomes is a concept that has “some reasonably convincing data” (Cassel, 1976, p. 110) to support it. Studies have shown that stressful events experienced by a woman while she is pregnant negatively affect the health and mortality risk of both the mother and infant (Cassel, 1976; Cobb, 1976; Copper et al., 1996; Kramer et al., 2001; Lobel et al., 1992; Mutale et al., 1991; Newton & Hunt, 1984; Nordentoft et al., 1996; Nuckolls et al., 1972; Orr et al., 1996). However, “variation in the way stress has been used across pregnancy studies also makes it difficult to draw conclusions” (Lobel et al., 1992, p. 32).

A study by Newton and Hunt (1984) nonetheless concluded there is a “significant association” between stressful major life events during pregnancy and preterm delivery, as well as with low birth weight (p.1193). In particular, Orr et al., (1996) concluded, psychosocial stressors are directly associated with risk of low birth weight and the significant factors differ among ethnic groups. There is consensus on, and much replication of this finding in the literature (Mutale et al., 1991).

Earlier research by Nuckolls et al., (1972) had concluded that when pregnant women were exposed to excessive stressful experiences they manifested significantly more pregnancy complications than did those women without high levels of stress. The mitigating factor appeared to be whether the pregnant women had access to a strong social support network. Cobb (1976) found that among those women whose high stressors were coupled with low levels of social support, 91% suffered pregnancy complications. In contrast, among women with high life

stressors that were buffered by high levels of social support, only 33% had pregnancy complications.

Maternal Stress and Racism Influencing Birth Outcomes in the United States

Seeking to understand why Blacks consistently have infant mortality rates at least twice those of Whites, some researchers (Adisa, 1994; Avery, 1994; Grant Bunch, 2000) suggest the ethnic disparity results from the tensions caused by racism, which manifest as nonproductive stress factors and ineffective coping. Grant Bunch (2000) points out that earlier reform movements efforts to address racial inequities gave little attention to Black women, so any problems of their pregnancies were not legitimized as a social problem.

On the other hand, Lu and Chen (2004) conclude that, “stressful life events do not appear to contribute significantly to racial-ethnic disparities in preterm birth” (p. 691). The authors state that their population study is in agreement with 10 other studies that have examined the link between preterm birth and stress or stress caused by racism. Hoffman and Hatch (1996) concluded that while the stressful life events appear to be significantly higher for Black women, no link was apparent between stress, racism and poor birth outcomes. Lu and Chen (2004) found that Black women have significantly more stressful events in their lives than women of other ethnic groups, with the exception of American Indian/Alaska Native women; but that this factor alone does not seem related to preterm delivery. Notably, Lu and Chen (2004) found the major difference between Black and White women to be partner-associated:

In our study, Black women were 163% more likely to experience partner-associated stress before and during pregnancy than White women. One in 6 Black women became separated or divorced from their husbands/partners in the 12 months before delivery, which is a rate twice that of White women. Nationally, nearly 70% of live births to Black women are to single mothers as compared to 25% of live births to White women. Nearly 1 in 6 Black women reported that their husbands or partners did not want them to be

pregnant. This study is also consistent with other studies that found higher rates of unintended pregnancy among black women. (p. 696-697)

In the end, the verdict on stress caused by racism and its effect on pregnancy outcomes so far remains mixed. In a 2006 report by the U.S. Department of Health & Human Services, Health Resources & Services Administration, stress is listed as a risk factor for preterm and low birth weight infants. Given the large number of conflicting results the present research does not make a determination whether racially induced stress contributes to adverse birth outcomes.

History of Healthy Start: The Maternal and Child Health Program Utilized for Research Data

Healthy Start was set up as a federal grant program with funds distributed through the Maternal and Child Health Block Grant. However, the promised sufficiency of federal funds never materialized. When Healthy Start was finally instituted it was with significantly fewer dollars than promised in the grant proposal. Congress granted funding at about half what was considered necessary, prompting the critique that infant mortality would not be significantly changed since only 15 demonstration projects throughout the United States were funded.

The initial goal for the Healthy Start projects, outlined in the Bush administration's Healthy People 2000 plan, was to reduce the overall infant mortality rate to seven deaths per 1,000 live births within the first five years of operation (Cooper, 1992). However, the targeted infant mortality rate for Blacks was 11 deaths per 1,000 live births (Herman-Giddens, 1994).

Healthy Start's "systems development" approach challenged communities to take a closer look at their maternal and child health; it was hoped that involving communities in the solution would dramatically improve pregnancy outcomes (Howell et al., 1997). Whether with public or privatized administration, multiple elements of the community were to form coalitions to manage

and oversee the program. Coalitions were to comprise civic leaders, mental and social health workers, clergy, private sector business, state and local government, schools, and healthcare providers (McCann Goldman & De La Cruz, 1999). The grant criteria for Healthy Start encouraged projects to link the public and private sectors.

This publicly funded, public-private healthcare program was to have administrative flexibility but the stability of federal funding. The program was to harness community support usually experienced only by local charitable organizations. The notion of bringing together a local collective to target pregnancy outcomes was viewed as giving control back to communities and empowering local leaders to meet the distinctive needs of that locale (McCann et al., 1996). Thus communities who were awarded Healthy Start grants readily accepted the concepts of local control and home rule.

Therefore, the strength of Healthy Start was presumed to be its very lack of the continuity in structure and services that characterize federal programs (McCann et al., 1996). Continuity across programs was perceived as negative because it imposed a rigid set of criteria - the proverbial “one size fits all” scenario. Healthy Start programs were encouraged to develop new and innovative solutions characteristic of their communities (McCann et al., 1996). It was believed that this new approach would finally help reduce the high rates of prematurity, low birth weight and infant mortality in the United States to a level comparable with those in other industrialized countries (Devaney et al., 2000).

In its early stages the Healthy Start program was first to identify all the needs of pregnant women and the factors that contribute to poor pregnancy outcomes, and then to identify which services were already being provided in the community (Howell et al., 1994). In essence, Healthy Start was to be a clearinghouse and coordinator for all maternal and child health services

in a community (Howell et al., 1994). After establishing a presence in the community the program would identify the women who were at risk for a poor pregnancy outcome and then coordinate the services they would need during pregnancy through post-delivery (McCann Goldman & De La Cruz, 1999). If those services were not available, the local Healthy Start was to provide them either directly or through a contracted provider (Howell et al., 1994).

To target poor pregnancy outcomes, Healthy Start demonstration projects first determined the current respective infant birth weights within their communities and sought either to develop programs or maximize existing ones for increasing birth weights (Howell et al., 1997). For all the Healthy Start programs, reaching potential clients was cited as a major problem; most estimated that only 50% of their potential clients were being serviced by century's end (Devaney et al., 2000). The clients served by the Healthy Start program are less likely to receive prenatal care in a private doctor's office, instead relying on local clinics or hospital emergency rooms. They also are more prone to consult a midwife for prenatal care (Devaney et al., 2000). Reaching these women has been cited as a challenge for all the Healthy Start programs because those who need the services are more prone to deny being pregnant and not seek prenatal care until the second or third trimester, or in many cases not at all. Thus they are high-risk candidates for delivering babies with low birth weight, which is a casual link to infant mortality.

For those clients that Healthy Start programs have reached, a demographic profile has been developed that is consistent with other infant mortality literature. The average Healthy Start client has an unplanned pregnancy, is a member of an ethnic minority, lives at least 125% below the federal poverty level and in an economically depressed area, and is more likely to be single and younger than 25. In some Healthy Start program areas, over 50% of the clients have less

than a high school education; the average for the 15 pilot Healthy Start programs is 35.5% with less than a high school education, whereas the national average is 22.1% (Devaney et al., 2000). In addition, the Healthy Start client is also likely to have the following high risk factors: community or domestic violence, homelessness, substance abuse or sexually transmitted diseases (Devaney et al., 2000). This profile is consistent with the literature on risk factors, associated with infant mortality that were cited earlier.

State Initiatives for Maternal and Child Health: Florida Takes Action

The states, too, were developing infant mortality programs. In 1991, states introduced 350 new programs targeted to maternal and child health (Cooper, 1992). Eventually states expanded their maternal and child health programs to an extent rivaling federal programs (Garner, 1999). North Carolina, for example, with some of the highest infant mortality rates in the country, implemented a statewide program called First Step. However, the state infant mortality programs, unlike the federal programs, had not seen a causal link between their maternal and child health programs and reductions in infant mortality (Garner, 1999; Piper et al., 1996; Ross et al., 1994).

With the national government showing increased attention to communities' infant mortality rates, the state of Florida decided to follow the trend for comprehensive maternal and child healthcare programs, and enacted Florida's Healthy Start Initiative on June 4, 1991. The Florida version gave local control to communities in deciding how to combat their high percentages of infant mortality. Set up in the early 1990s, the Florida model combined non-profits and public-private partnerships. The Florida legislators considered the program to be privatized.

The goals of the Florida program and the federal programs were similar; which were to “reduce infant mortality, reduce the number of low birth weight babies and improve health and developmental outcomes” (Florida Healthy Start Standards & Guidelines, 1998; Healthy Start Annual Report 2007, p. 2). However, the Florida program had more control over which services would qualify as Healthy Start services. Care coordination, home visits and universal prenatal and postnatal screening (McClintock, 1997) were mandated features of the Florida Healthy Start Initiative, whereas, the federal program gave broad discretion to local Healthy Start groups as to what services they provided. The new Florida program also increased Medicaid eligibility and reimbursements. Pregnant women who were 185% of the poverty level were now eligible for Medicaid services, in contrast to the former cut-off at 100% of poverty income (McClintock, 1997).

Multi-county coalitions comprising service providers and community members interested in maternal and child healthcare needs were encouraged to form and apply to the Florida Department of Health for operating funds. The coalitions were to be operated by independent boards of directors voted for by the coalition membership. Where a coalition did not form the county health department was responsible for administering the services until a non-profit or public-private partnership could be established to operate the program. Currently, 33 Healthy Start coalitions have been formed in Florida, of which two coalitions are funded directly from the federal Healthy Start grant. Florida’s public-private partnership, or privatized model, was patterned after the federal model in relying heavily on community involvement.

The coalitions conduct assessments of community assets and needs, identify gaps and barriers to effective service delivery and develop a service delivery plan to address identified problem areas and issues. They also allocate available state direct service dollars to local providers and monitor the Healthy Start system of care. Healthy Start coalitions typically include volunteers from all facets of their local communities.

Coalition members required by statute include consumers, health care providers, local health advocacy interest groups and community organizations, county and municipal governments, social service organizations, and local education communities. (Healthy Start Annual Report 2007, p. 6)

Using Florida general revenue funds and a portion of federal funds from the Maternal and Child Health Block Grant, the state of Florida funded coalitions at about 50% the recommended community need, requiring coalitions to find service dollars from other sources. Thus, from Healthy Start's inception in Florida, they had to incorporate community involvement to help augment its funding needs.

Theory Review: Perinatal Paradox

In the late 1980s, the tide was changing. Healthcare policy makers were critiquing pregnancy programs that were not working even though the United States was spending a significant portion of the gross national product on public health problems (Strobino et al., 1995; Wegman, 1994). Despite more money spent on prenatal care, increased use of prenatal services, and medical advances statistics on negative pregnancy outcomes did not improve as hoped for (Garner, 1999; Kliegman, 1995; Rosenblatt, 1989). Among researchers this inability to reduce the poor pregnancy outcomes in the United States to levels similar to those in other industrialized countries came to be known as the Perinatal Paradox (Flatow Culhane, 1999; Garner, 1999; Goldenberg, 1994; Kliegman, 1995; Kramer et al., 1998; Leviton, 1995; Rosenblatt, 1989; Sepkowitz, 1994).

The Perinatal Paradox predicts that regardless of how much money is spent, how much medical technology improves and how many social programs are offered in the area of maternal health, preterm birth, low birth weight and infant mortality rates will not decline at rates

consistent with the inputs. If the Perinatal Paradox is accurate, the key to improving pregnancy outcomes is not to be found in those factors, but is still locked away.

Theory Review: Social Capital Theory

The concepts and foundations of social capital can be traced to social scientists such as Durheim, Marx, Toennies, Weber and de Tocqueville; however, according to Tollini (2005) and Putnam (2000) the term was not used in the published literature until 1920, by Hanifan. According to Putnam (2000) the term had been “independently invented at least six times over the twentieth century” (p. 19). Many social capital historians trace the origins of the term to the mid-twentieth century writer on urban realities, Jane Jacobs, who is credited with originating the idea in 1961 (Putnam, 2000). Disagreement remains as to both the origins of the term and its concepts. Even though the term could be found in use in several disciplines, social capital did not appear often in the literature until after Putman, Leonardi and Nanetti (1993) published “*Making Democracy Work: Civic Traditions in Modern Italy*.” The many evolutionary stages in the concept of social capital solidified to the most commonly used definition: “the features of social life - networks, norms, and trust - that enable [people] to act together more effectively to pursue shared objectives” (Putnam, 1995, p. 664-665).

Though Putnam (1993, 1995a, 1995b, 2000) has garnered significant exposure for the term social capital, and is often credited with its development, a body of social capital literature preceded his work. For example, Loury (1977) briefly discussed social capital in relation to the lack of upward economic mobility available to poor minority youth (Portes, 1998). However, the concept of social capital was developed further by subsequent authors, Bourdieu (1986), Coleman (1988) and (Portes, 1998).

Bourdieu (1986) applied the term social capital in the early and mid-1980s as one of the many forms of capital available to people (Portes, 1998). However, Bourdieu's (1986) usage of the term first appeared in French and was not widely disseminated, so he has not been well recognized as a founding father of the social capital construct. For Bourdieu (1986) social capital is the:

Aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to members in a group – which provides each of its members with the backing of the collectivity-owned capital. (p. 248-249)

Also during the late 1980s, Coleman (1988), one of the first social capital researchers, used the term to explain high school dropout rates. Coleman (1988) traced the progressive academic thread that leads to the theory of social capital by discussing the “norm of reciprocity” derived from Goulter (1960); the “embeddedness” of social networks which generates trust, expectations and enforces norms, derived from Granovetter (1985); the concept of multiplex relationships that “allows the resources of one relationship to be appropriated for use in others” (p. S109), derived from Gluckman (1967); exchange theory and the theory of rational action. Thus according to Coleman (1988) social capital is a “pastiche” that borrowed its creative elements from multiple disciplines (p. S98).

In Coleman's (1988) version, social capital is a synergistic resource that individuals can transform into improved outcomes to further achieve their aims. Coleman (1988) distinguishes three different types of capital: physical, human and social. Physical capital is the change in materials to form tools that in turn create production (Coleman, 1988). Human capital is the change in people to form skills and capabilities that allow for new actions (Coleman, 1988). Physical capital is a tangible product, whereas human capital is not but rather is a composite of

the improved skills of people. Social capital is even harder to quantify (Fukuyama, 2001) though it has been referred to as a “raw material” (O’Brien, Burdett & Molgaard, 2004, p. 1208). Social capital is the by-product of the fostering of social relationships into linkages that create personal or collective resources (Coleman, 1988).

Though social capital is not tangible, it is nonetheless considered a “good” or “resource” that can be maximized for improved outcomes (Woolcock, 1998). This resource can be cashed in for personal gain or to receive a “credit slip” that can be used later (Coleman, 1988, p. S104); for the “credit slip” to be considered valid, however, a high level of trust must exist among the individual actors. Their level of trust depends on effective norms of behavior being established that produce positive benefits or impose collective sanctions on individual actors (Coleman, 1988).

An important feature of social capital that contrasts sharply with its physical capital cousin is that social capital does not lose its value from heavy usage (Brisson & Usher, 2007). In fact, social capital gains value with each use (Brisson & Usher, 2007; Hawe & Shiell, 2000). Lin (2001) has a similar metaphor for social capital in terms of investments and return on investments in the marketplace. Lin (2001) perceives social capital as “resources embedded in social relations and social structure, which can be mobilized when an actor wishes to increase the likelihood of success in a purposive action” (p. 24). Lin’s (2001) social capital definition parallels Bourdieu’s (1986) and Putnam’s (2000): accessing intangible resources through relationships or social structures for a positive outcome (Beaudoin, 2007).

Following in the wake of Bourdieu (1986) and Coleman (1988), Putnam (1993, 1995a, 1995b, 2000) coalesced the components of social capital into their now familiar concepts: social networks, norms of reciprocity, and trust. The social networks positively enhance the

“productivity of individuals and groups” (Putnam, 2000, p. 19). The added productivity then became the “cash-value” of the social networks. The social networks that individuals have or can access contain both internal and external value. The internal value could be family support, friendship, assistance finding a job, or a helping hand from a neighbor (Putnam, 2000, p. 20). The external value is the public good that is generated from the mutual obligations and expectations for behavior in the social networks, what Putnam (2000) refers to as norms of reciprocity. The necessary lubrication for social networks to generate norms of reciprocity is trust, whether in individual actors or in systems such as government, the judicial system or the church.

When expounding the theory of social capital, Putnam (2000) distinguishes two forms: bridging and bonding. Bridging comprising inclusive networks and bonding comprising exclusive networks. Examples of bonding social capital include “ethnic fraternal organizations, church-based women’s reading groups, and fashionable country clubs. Other networks are outward looking and encompass people across diverse social cleavages. Examples of bridging social capital include the civil rights movement, many youth service groups, and ecumenical religious organizations” (Putnam, 2000, p. 22).

Briggs (1998) succinctly defines such differences by explaining that bonding social capital is “good for getting by but bridging social capital is crucial for getting ahead” (Putnam, 2000, p. 23). Other researchers have made similar observations, pointing out that bonding social capital is good, but that without bridging social capital, people in low socio-economic neighborhoods have difficulty improving their opportunities (Macinko & Starfield, 2001; Granovetter, 1973; Altschuler, Somkin & Adler, 2004).

Woolcock (1998) would add another form of social capital known as linking social capital (Ferlander, 2007). Linking social capital is a sub-set of bridging social capital and has been applied to those relationships that fall outside the bonding and bridging boundaries. Ferlander (2007) exemplifies linking social capital ties as those of closely held or distant work colleagues who hold positions along a different hierarchy (p. 118).

One of the problems of the research on social capital is how to operationalize bonding, bridging or linking social capital (Ferlander, 2007), because as one social capital researcher put it, “if you can’t measure it you can’t manage it” (Gregory, 1999, p. 66). Empirical research on social capital has not defined or measured the term consistently (Brisson & Usher, 2007; Sabatini, 2008). It is common for researchers to define social capital in “a la carte fashion”, selecting the components that are most appealing to them (Almedom, 2005). For example, Mitchell and LaGory (2002) used participation in voluntary associations as a measure of bonding social capital, whereas Van Oorschot et al., (2006) used the same variable to measure bridging social capital (Ferlander, 2007). Mohan, Twigg, Barnard and Jones (2005) view the primary measurement problem as trying to operationalize cultural and community norms of behavior.

Empirical research on social capital also suffers from a severe lack of generalizability due to some authors such as Carpiano (2007) steering away from the variables recognized as measurements of social capital. For instance, trustworthiness is a commonly used social capital variable that Carpiano (2007) doesn’t use in his research. Whereas many social capital researchers measure these components: trust, norms of reciprocity and civic participation Carpiano (2007) measures the components social support, social leverage, informal social control, and neighborhood organization participation. Such lack of uniformity in the variables plagues social capital in the struggle to validate it (Brisson & Usher, 2007).

Some of the above examples illustrate the variations in social capital definitions found in the literature. An additional dilemma for social capital researchers when trying to operationalize the term has been whether to measure the construct at the individual or collective level.

Kawachi, Kim, Coutts, and Subramanian (2004) describe the problem:

one important disagreement in both the theoretical and empirical literatures on social capital relates to the differences between those who view social capital as an individual attribute versus those who view it as a property of collectives (for example, communities or entire societies). (Poortinga, 2006, p. 683)

Consensus is a growing in the literature on social capital that it should not be viewed as an individual or a collective variable, but rather as both (Kawachi et al., 2004; Oorschot et al., 2006; Son & Lin, 2008). Kawachi et al., (2004) contend that social capital is a contextual construct and study designs should be using a “multi-level analytical framework” (p. 683) where “individuals (and their health outcomes) [are] nested within areas (e.g., neighborhoods, states) that vary with respect to their levels of social capital” (Kawachi et al., 2004, p. 688). Son and Lin (2008) postulate both that individual and institutional levels of social capital may affect the outcomes for both individuals and institutions. While the debate over individual vs. aggregate levels continues, the consensus among the majority of social capital scholars is that the components - social networks, norms of reciprocity and trust - are foundational corners supporting social capital (Ferlander, 2007).

Other critiques of social capital raise different points. For example, Sobel (2002) challenges Putnam’s (1995a; 1995b, 2000) social capital concept by arguing that the decline in joining certain types of groups does not signify a decline in civic participation. Sobel (2002) notes that now women are going to law school instead of baking cookies for the PTA. They are listening to talk radio on the daily commute to stay current on politics, watching popular TV

shows that can then be discussed at work, and connecting with friends and family by phone or on the Internet. According to Sobel (2002) these activities are more efficient than the “Putnam” methods to accomplish similar aims. “The jobs of social capital are getting done in other ways, and the price needed to maintain the past forms is just too high” (Sobel, 2002, p. 143). Moreover, Sobel (2002) reminds us that the farmer does not long for the days of the horse and plow when a tractor is more effective and argues that declining rates of social capital should not be seen as a danger sign but as an increase in efficiency.

Social Capital Theory’s Relationship to Health

When linking the concept of social capital to health outcomes, researchers often start with the seminal work of Durkheim (1897), who discussed how suicide rates were affected by an individual’s social support network. Social capital was formally introduced into the health literature in the late 1990s by such authors as Kaplan, Pamuk, Lynch, Cohen and Balfour (1996); Wilkinson (1996); Kawachi, Kennedy, Lochner and Prothrow-Stith (1997); Lomas (1998); and Kennedy, Kawachi, Prothrow-Stith, Lochner and Gupta (1998).

It was as recently as the 1990s that empirical research began to identify causal relationships between various levels of social capital and health status. Social capital was first showcased in the health literature as an explanatory construct connecting economic inequalities, health and mortality (Moore, Haines, Hawe & Shiell, 2006; Moore, Shiell, Hawe & Haines, 2005; Stephens, 2008; Wilkinson, 2000). In an effort to understand the psychosocial dimension of health outcomes at the ecological level, Kaplan et al., (1996) and Wilkinson (1996) first introduced social capital into the health literature as a mediating factor (Moore et al., 2006). As

more researchers adopted social capital into their health outcomes studies, the concept has expanded.

While the term social capital has not always been used in the health literature, the concepts identified there are consistent with the study's independent variable. Research on social support networks has perhaps provided the strongest linkage between the construct of social capital and health outcomes. When social capital is viewed through a social support lens, the list of health outcomes cited which refer to social capital is overwhelming.

In just one example, Hirdes and Forbes (1992) "found a strong correlation between social relationships index (comprised of marital status, number of children, family contact and participation in voluntary associations) and mortality" (Veenstra & Lomas, 1999, p. 8). Personal social connections that individuals make have effects on health, illness and subsequent mortality (Kawachi et al., 1997). For instance, for such common health elements as resistance to a cold virus Cohen et al. (1997) concluded that an individual's social ties have a positive effect (Lomas, 1998).

Lomas (1998) points out that when treating health outcomes we err in focusing only on the individual. "Put simply, individuals (and their ill-health) cannot be understood solely by looking inside their bodies and brains; one must also look inside their communities, their networks, their workplaces, their families and even the trajectories of their life" (Lomas, 1998, p. 1182).

Looking at an individual with a CT scan, we can see details otherwise not possible. However, what we miss is the surroundings of the individual; the old adage of "can't see the forest for the trees" is applicable. Measuring social capital allows the researcher not only to "see the tree," but also to "see the forest" it lives in. By quantifying the networks, social ties, club

memberships, trust in neighbors and government, we are able to develop a composite of the individual's levels of trust, reciprocity and civic engagement that translates into social capital.

While there have been critics of the application of social capital to health, Putnam (2000) states:

Of all the domains in which I have traced the consequences of social capital, in none is the importance of social connectedness so well established as in the case of health and well-being...The more integrated we are with our community, the less likely we are to experience colds, heart attacks, strokes, cancer, depression, and premature deaths of all sorts...the positive contributions to health made by social integration and social support rival in strength the detrimental contributions of well-established biomedical risk factors like cigarette smoking, obesity, elevated blood pressure, and physical inactivity...Finally, and most intriguingly, social capital might actually serve as a physiological triggering mechanism, stimulating people's immune systems to fight disease and buffer stress. (p. 326-327)

Putnam (2000) concludes his argument that social capital benefits an individual's health by citing empirical research documenting that people who lack a foundation of trust, reciprocity and civic involvement are two to five times more likely than others to die from all causes.

Putnam (2000) even contends that it is a toss-up whether someone should quit smoking, join a group or move to a high-social-capital state. He views the health benefits of high social capital as so great that it can off-set many risky health behaviors.

This phenomenon of social capital is hypothesized to influence health through the positive norms of behavior derived from close-knit relationships that directly affect an individual's health (Veenstra, Luginaah, Wakefield, Birch, Eyles & Elliott, 2005). Similarly, Crosby and Holtgrave (2006) contend that social capital "exerts its influence on health outcomes.... by fostering protective behaviors and reducing risk behaviors... and promoting access to public health services" (p. 557). Perry, Williams, Wallerstein and Waitzkin (2008) and Kawachi et al., (1999) offered the same conclusions, but Perry et al., (2008) adds the component

of trust as a factor that may reduce barriers to care. Kawachi et al., (1999) suggest that one of the reasons social capital influences health is that it provides access to the social support networks that are needed during a time of need or crisis (Walker et al., 2007).

The aforementioned authors theorized that the presence of social capital tempers an individual's risky behavior and thus protects. However, Ervin et al., (1999) concluded that individual health risk is contingent on available resources, not on behaviors. In assessing a person's risk factor, Ervin et al., (1999) states, social status, social capital and human capital must be assessed first. Only then can the individual's risk level accurately be understood.

Not all researchers, however, conclude that high levels of social capital reduce risky health behaviors. For example, in a recent study of mothers and their smoking habits, Carpiano (2008) found that the effect of social capital on health differs with the type of social capital. For example, women with more social capital based on neighborhood bonding also reported higher smoking rates and poorer health. In contrast, women with more social capital based on neighborhood bridging reported lower smoking levels and better health. Thus with reference to smoking, the close-knit bonding relationships within a neighborhood raised women's health risk (Carpiano, 2008; Chuang & Chuang, 2008; Greiner, Kawachi, Hunt & Ahluwalia; 2004; Siahpush, Borland, Taylor, Singh, Ansari & Serraglio, 2006). Other studies, too, have shown how shared norms of behavior among women with the closest ties can legitimize risky health activities such as smoking and alcohol consumption and lead to poorer health outcomes (Almedom, 2005; Stafford, Cummins, Macintyre, Ellaway & Marmot, 2005). Mohan et al., (2005) stress that while social capital is beneficial, it may not be "good medicine" for all.

Along with the conflicting study results, there is still strong evidence in the literature to support social capital's positive effect on morbidity and mortality. "Generally, the more social

capital, the better the public health measure” (Crosby & Holtgrave, 2006, p. 557). Many studies have demonstrated that social capital positively influences an individual’s self-rated health (Kawachi, Kennedy, & Glass, 1999; Subramanian, Kawachi & Kennedy, 2001; Carlson, 2004; Greiner, Li, Kawachi, Hunt & Ahluwalia, 2004; Poortinga, 2006; Schultz, O’Brien & Tadesse, 2008; Engstrom, Mattsson, Jarleborg & Hallqvist, 2008; Perry et al., 2008; Fujiwara & Kawachi, 2008; Almgren, Magarati & Mogford, 2009).

However, when Kavanagh, Turrell and Subramanian (2006) evaluated bonding and linking components of social capital they found no significant effects on self-rated health. In addition, Turrell, Kavanagh and Subramanian (2006) found little support for a link between social capital and mortality. The authors concluded that their study undercuts the popular concept of social capital as a health indicator (Turrell et al., 2006).

While many researchers have found positive links between social capital and health, Hawe and Shiell (2000) accuse researchers of circularity: “There is a tendency to define social capital as whatever ‘social health’ indicator predicts health status best” (p. 880). The authors continue their criticism of social capital as a concept, accusing it of being “too broad relative to more precise, alternative constructs” when trying to explain “health patterning” (Hawe & Shiell, 2000, p. 880).

A criticism argued by Wilkinson (2000) is that because social capital was not originally developed as a theory about health outcomes, it suffers in the details. Wilkinson (2000) contends that health outcomes are largely attributable to income inequalities rather than factors of social capital. Another criticism, developed by Cattell (2001), is the vagueness about which types of networks are beneficial to health. For example, there is no clear delineation between the health effects of bridging and those of bonding social capital.

Components of Social Capital Related to Pregnancy Outcomes

Money spent, additional social programs, medical advances and more use of prenatal services have reduced rates of poor pregnancy outcomes but not to the levels in other industrialized nations. What is the missing link? What do other industrialized countries have that the United States does not? Why are pregnancy outcomes different across ethnic groups? Why do some communities, regardless of perceived negative demographics, seem less vulnerable to poor pregnancy outcomes? The answer to all these questions could lie within the construct of social capital.

While no research links maternal social capital levels directly to pregnancy outcomes, a small subset of literature does discuss how concepts that compose social capital influence pregnancy outcomes. LaVeist (1992) discusses how Black political participation relates to the Black infant mortality rate in a community, and Roberts (1997) concluded that increased social connectedness and support through a social service program or the mother's established network is positively associated with improved birth weights. Social support networks have been shown to have a multi-dimensional positive impact on women during pregnancy (Balaji et al., 2007). For example, according to an ethnographic study conducted by Savage et al., (2007) of Black pregnant women who had "demographic risk factors associated with preterm birth and infant mortality such as late entry into prenatal care, less than 12 years of education, or being unmarried," (p. 221), the women were buffered from those risk factors if they had access to strong social networks, made up of the women in the family: grandmothers, mother, sister(s) (Savage et al., 2007).

Studies have shown that pregnant women with access to a cohesive social network are cocooned from specific pregnancy risks: pregnancy complications (Nuckolls, Cassel, & Kaplan,

1972); low birthweight (Cobb, 1976; Norbeck et al., 1996, Roberts, 1997); and mental health problems (Balaji et al., 2007). Cobb (1976) discusses how important social support is when he states, “social support begins in utero, ... best recognized at the maternal breast, and is communicated in a variety of ways, but especially in the way the baby is held (supported)” (p.301). Nuckolls, Cassel and Kaplan (1972) concluded that when pregnant women were exposed to excessive life-changing experiences they had significantly fewer pregnancy complications if they had access to a strong social support network. In the Nuckolls et al., (1972) study, the combination of high life stressors coupled with low levels of social support resulted in 91% of those women experiencing pregnancy complications cited in Cobb (1976). In contrast, among women with high life stressors who were buffered by high levels of social support only 33% had pregnancy complications. Furthermore, the telling result was that among women who had few life stressors but also low levels of social support, 49% had pregnancy complications (Cobb, 1976). Therefore, the conclusion appears to be that levels of stress are not so much the predictor of pregnancy outcomes as much as social support is.

Norbeck et al., (1999) concluded through a randomized clinical trial that social support for low-income Black women during pregnancy improves birth weights even when it consists of a social services intervention program. The additional finding of this study is that the relationship holds regardless of the factor of race. This is a key finding, since Blacks typically have at least twice the rate of infant mortality of Whites and other races. However, concerning women with limited access to social support networks the good news is that they are more likely to participate in an intervention program and seek out information (Birkel & Reppucci, 1983). Those women also are more likely to share information with others; the frequency with which they shared the information predicted the degree of behavior change (Walker & Riley, 2001).

Kawachi et al., (1999) suggests a similar concept in describing the formal and informal networks that comprise social capital as having three primary pathways that can influence individual health: by helping people access health education and information, by imposing cultural norms that inhibit risky health behaviors and by promoting prevention efforts (Schultz et al., 2008, p. 606). These pathways are consistent with the resource methods used by the Healthy Start program to reduce adverse pregnancy outcomes. For example, care coordination provides home visits by a nurse or social worker that tailors the information and linked community resources according to the needs of the pregnant woman. Thus by accountability measures such as phone calls to doctors and home visits based on need, Healthy Start is able to impose cultural norms to deter risky health behaviors.

In a recent study of unmarried mothers, Ciabattari (2008) concluded that low-income mothers had more work-family conflicts than high-income mothers did. The study also revealed that when mothers had high levels of work-family conflict they had poorer health, which then significantly interfered with employment. However, when these low-income mothers had more social capital, they reported less work-family conflict and improved health. Those findings illustrate the concept of social capital serving as a buffer and providing resources that translate into positive social goods. In this study the positive goods are less work-family conflict, which translates to better health and better employment record. Though the study is not specific to pregnancy and social capital, it does capture a component, how social capital affects low-income single mothers after a child is born.

Of the studies identified that evaluate the impact of social capital on pregnancy outcomes, the majority focus on teen pregnancy rates (Gold, Kennedy, Connell & Kawachi, 2002; Crosby & Holtgrave, 2006). For example, Crosby and Holtgrave (2006) conducted a study that revealed

state-level teen pregnancy rates to be strongly correlated to social capital. The authors concluded that “social capital was inversely correlated with teen pregnancy rates. The obtained correlation was strong ($r = -.78$) and achieved significance ($p < .001$)” (p. 558). The study concluded that “social capital operates independently from poverty and income inequality to exert a protective effect against high statewide rates of teen pregnancy” (Crosby & Holtgrave, 2006, p. 558). Gold et al., (2002) conducted a similar study and concluded that social capital was a causal pathway that linked an increase in teen pregnancy rate with increase in income inequality rate.

This review of the literature has identified a plethora of research on the pregnancy outcomes of prematurity, low birth weight, and infant mortality. With few exceptions, studies have consistently demonstrated strong links between components of social capital, such as social trust and civic participation, with objective and subjective health (Barefoot et al., 1998; Hyyppa & Maki, 2001; Rose, 2000). The literature has also identified a correlation between an individual’s level of social capital, health status and subsequent mortality (Kawachi et al., 1997; Poortinga, 2006; Portes, 1998; Putnam, 2000; Wan & Lin, 2003). There is a linkage in the research connecting social support (Balaji et al., 2007; Norbeck et al., 1999; Roberts, 1997), maternal health status (Hueston & Kasik, 1998; Jesse & Alligood, 2002; McKee et al., 2001), political participation by Blacks (LaVeist 1992, 1993), and aggregated community levels of social capital (Kawachi et al., 1997; Putnam, 2000) with improved pregnancy outcomes. However; no research connects the dots left by previous researchers to discover whether individual maternal social capital influences subsequent pregnancy outcome.

While no studies have been found to date that evaluate maternal social capital in relation to pregnancy outcomes, a few have researched, with mixed results, aggregated social capital levels and aggregated pregnancy outcomes. To date, this researcher has identified a total of four

such studies (Kawachi et al., 1997; Moss, 2002; Putnam, 2000; Veenstra, 2002). Another study that was reviewed evaluated the effect of social capital as one of many structural-level factors on birth weight (Smith, 2006); that study is not discussed, as the social capital variables used were based on the actual number of bowling alleys and businesses located in a community, a set of variables used to measure social capital that are vastly different from those in the other four studies.

Of the four studies noted, all report the data on social capital and pregnancy outcomes at the aggregated level. The findings are mixed. Two studies found significant associations between community level social capital and aggregated pregnancy outcomes (Kawachi et al., 1997; Putnam, 2000); one study found no significant relationship between the constructs (Veenstra, 2002), and one study found significant association only between neighborhoods with high levels of social capital and low infant mortality rates (Moss, 2002).

Putnam (2000) contends that infants and children flourish in states that have a high social capital index. Kawachi et al., (1997) similarly concluded that community social capital levels in concert with income inequality could predict 58% of the variance in total mortality and 42% of the variance in infant mortality. However, in a Canadian study reviewing the rate of low birth weight, Veenstra (2002) found no relationship with an aggregated social capital index. Moss (2002) reviewed census tract data to evaluate the impact of neighborhood social capital on neighborhood infant mortality rates. Only for those neighborhoods with high social capital levels was there a mediating effect.

In summary, of the four identified studies that review the impact of social capital on pregnancy outcomes, two identify a link between aggregated national and state-level social capital data and pregnancy outcomes. Information remains lacking on any link at the individual

maternal level (Kawachi et al., 1997; Moss, 2002; Putnam, 2000; Veenstra, 2002). The findings from Putnam (2000) and Kawachi et al., (1997) are the basis for this study's review of whether maternal social capital levels influence pregnancy outcomes. The literature does support an in-depth look at how individual maternal social capital ultimately influences the pregnancy outcome. Consequently, the primary research question remains: "Does the mother's level of social capital affect her pregnancy outcome?"

CHAPTER THREE: METHODOLOGY

The guiding premise of this study is whether a relationship exists between a mother's level of social capital and her pregnancy outcome. In order to assess this premise, three research questions were posed to explore first how maternal risk factors influence social capital and pregnancy respectively and then how maternal social capital influences pregnancy outcomes.

Research Questions

RQ₁: What is the relationship between maternal risk factors and maternal social capital?

RQ₂: What is the relationship between maternal social capital and pregnancy outcomes?

RQ₃: What is the relationship between maternal risk factors and pregnancy outcomes?

Hypotheses

H₁: Maternal levels of social capital surveyed during the prenatal period will be low.

H₂: There is an inverse relationship between maternal level of social capital and Healthy Start program completion.

To assess the validity of the research questions and the hypotheses it is necessary to fit the data and to predict the variance in the dependent variable by developing path diagrams. Also to be determined is whether the paths depicted in the model are statistically significant, weak or strong, and predictive as would be expected according to social capital theory (Tollini, 2005). If the data fit the model, there is support for social capital theory's ability to assist in predicting pregnancy outcomes. If the data do not fit the model, then either the limitations identified in this research overpowered the model, or perhaps social capital does not influence pregnancy outcomes.

Another indicator of model fit is shown by the strength and expected direction of path coefficients. If the model is highly predictive, the first link of the chain is established for the influence of maternal levels of social capital on pregnancy outcomes. If the model does not provide predictive strength that is evidence that the variables are not relevant or causally linked, or that variables are missing from the model.

Research Model

A correlational-predictive model was developed to determine the statistically significant correlation among and between the independent and dependent variables. The goal in using path analysis and structural equation modeling was to discover whether a link exists between maternal level of social capital and the pregnancy outcome, which is the health status of the infant. Data were collected at two time points: first during the prenatal period to identify the maternal demographics and social capital level, and second for no less than 30 days and no more than 45 days post-delivery to assess the pregnancy outcome. The data collected between the two time points were correlated using path analysis and then structural equation modeling to discover whether links exist between level of maternal risk factors, maternal social capital and the subsequent pregnancy outcome.

Study Population

The study population was the prenatal clientele during the period August 2007 – September 2008 in the Healthy Start Program in Orange County, Florida. According to Florida State Statute 383.14 (1) (b) and Florida Administrative Code 64C-7.009, all pregnant women are to be evaluated for their adverse-outcome risk at their first prenatal visit (Clark & Thompson, 2004), using the Florida Healthy Start Prenatal Risk Screening instrument. Those scoring 4 or

higher on Florida's Healthy Start Prenatal Risk Screening instrument, are contacted by their local Healthy Start program to be further assessed for their risk of an adverse pregnancy outcome. The program assesses women on levels scaled 1-3, with 1 being the lowest at-risk category and 3 the highest. If the Healthy Start care coordinator finds a woman is at Level 2 or 3 she is automatically referred into the Healthy Start program. Level 1 clients can be admitted on the basis of their circumstances. If a Level 1 prenatal client is a minor, for example, the care coordinator monitors that she is keeping her doctor's appointments. A woman using illegal drugs while pregnant who is in the Level 1 category would be admitted into the program so her care coordinator could monitor her progress and provide referrals for rehabilitation. It should be noted that all Healthy Start program participation is voluntary but care coordinators do make repeated attempts by phone calls and home visits to reach any client considered at-risk for an adverse birth outcome.

Once the client is contacted and assessed to be in need of services, and has voluntarily consented to participate in Healthy Start, she is admitted. The Healthy Start Guidelines set forth in Florida Administrative Code (F.A.C.) determine how many times a client is contacted per month. Level 1 clients have their doctor's appointments monitored to find out if they are keeping them. Level 2 clients receive a monthly phone call to monitor their progress and find out if they need any additional services; some Level 2 clients also receive home visits, depending on the circumstances. Level 3 clients are contacted at two-week intervals, once by phone and once with a home visit. The total number of clients participating in the Orange County Healthy Start's Care Coordination program includes both prenatal and postnatal clients. However, since the goal of this research was to determine social capital levels and then pregnancy outcomes,

only the prenatal clients were enrolled in the study. During the research period all 112 women that entered during their prenatal stage of pregnancy participated in the study.

Study Sample

All 112 women receiving prenatal care coordination from the Orange County Healthy Start program from August 2007 – September 2008 were solicited for the study. Subjects were required to be at least 18 years of age and receiving maternal and child health services from the Orange County Healthy Start program. Women were asked to participate in the research project during the first prenatal contact by the care coordinator from Healthy Start. The client was told participation was completely voluntary and was read a consent letter in her language of choice (English, Spanish or Haitian Creole). She was also informed by the care coordinator that if she elected not to participate she would still receive all her Healthy Start services. Surveys were offered in the language that was most comfortable for the client, English, Spanish or Haitian Creole.

Of the total of 112 women who were approached from August 2007 through September 2008, 100% agreed to participate in the first interview. Of those 112 women that agreed to participate in the first interview, 92 agreed to complete the second interview. Reasons for 20 not completing the second interview included: moving with no forwarding address, unsuccessful attempts at telephone contacts, and unsuccessful attempts at home visits. Data for 19 of the 20 women who did not complete the program were analyzed to see whether statistically significant differences existed between those women who completed the Healthy Start program or not. One survey was deleted due to the excessive number of missing variables. Thus only 19 were analyzed.

Survey Instrument

Questions for this study's survey instrument were selected from three primary sources: Florida's Healthy Start Prenatal Risk Screen, survey developed by Wan and Lin (2003) to measure social capital and the researcher's collaboration with experts representing the Healthy Start program.

Questions 1-22 of the survey were taken from the state-mandated Healthy Start Prenatal Risk Screen, which refers women to the Healthy Start program. The Florida Department of Health developed this instrument based on analysis of the 1989 Florida birth and infant records that identified factors predictive of infant death (Thompson, Hopkins & Watkins, 1993). Since exhaustive review had been conducted on the state prenatal risk screening instrument, a pilot test was not used here to test its internal or external threats to validity and reliability. Also, questions 23-28 are additional demographic questions about employment status and annual income that provide a broad picture of the woman's economic status.

Questions 29-35 measure a woman's social capital in terms of her levels of trust, reciprocity, civic involvement and social networking and were modeled after a study conducted by Wan and Lin (2003) that analyzed the social capital, health status and health services use among older women in Almaty, Kazakhstan.

The remaining 10 questions (36-45) were developed through a collaboration of the researcher and experts representing the Orange County Healthy Start program. The last part of the survey instrument used here reported the pregnancy outcome of previously surveyed women and sought to measure her infant's gestational age, birth weight, overall health and mortality, type of delivery (c-section or vaginal), APGAR score, and whether a pediatrician visit had been

scheduled. The pregnancy outcome portion of the survey was administered no less than 30-days post delivery and was administered in the same format as previously used.

Survey Administration

All Healthy Start Care Coordinators were required to undergo a research and ethics training session prior to administering any surveys. The principal investigator, Jennifer James-Mesloh, performed a training session on research, ethics, consent letter process, administering surveys, and proper storage. Each Healthy Start Care Coordinator was given a reference manual that expounded those topics in great detail.

Given the demographic characteristics of the study population, the best method of administering the surveys was for the care coordinator to read the questions aloud and ask the client to answer verbally. That decision was based on the 1992 National Adult Literacy Survey, which reported that 93% - 97% of adults in the second-lowest reading level ranked themselves as being very proficient in reading and writing English as did even 66% to 75% of those in the lowest reading level (Hahn & Cella, 2003). Those results indicate that low-literacy clients may not be forthcoming or even aware about functioning with a deficiency (Hahn & Cella, 2003).

According to Hahn and Cella (2003), health-related surveys have typically been administered using paper-and-pencil; a technique that can fail to properly evaluate the patients with the lowest literacy levels or those who use English as a second language, may often be the citizens most at risk for adverse health outcomes. This study sought to reduce that limitation by providing surveys in the language in which the client was most comfortable. Also, given the high potential for the study population to have low or very low literacy levels, all consent letters

and surveys were read aloud by the care coordinator in the language the client preferred. The care coordinator recorded the client's answers on the questionnaire.

In compliance with the Privacy Rule of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) no personal identifiers of the survey participants were used on consent letters or survey forms. Upon completion of the first portion of the survey, the survey remained with the care coordinator in a secure container until the second portion of the survey was administered.

No more than 45 days after the birth of her baby, each survey participant was contacted by her previously assigned Healthy Start Care Coordinator by telephone or personal visit to assess the pregnancy outcome. The mother was asked by the Care Coordinator to estimate how often she received Healthy Start services, the gestational age of her infant, general health questions, the birth weight and if there was an infant death within the first 28 days of birth. The Care Coordinators administered the pregnancy outcome surveys in an appropriate language for the client, read the questions aloud and then recorded the client's answers in the questionnaire. When the pregnancy outcome section of the survey had been completed, it was returned to the researcher for scoring and analysis.

Data Collection

Before collecting data, this research was approved by the Institutional Review Boards of the University of Central Florida and the Florida Department of Health, as well as by the Healthy Start Coalition of Orange County and the Orange County Health Department.

Data collection began in August 2007 and continued through September 2008 so that a census could be taken of the prenatal clients in the Orange County Healthy Start program. Data

collection was conducted by Orange County Healthy Start Care Coordinators after receiving and recording each participant's oral consent. All surveys were administered in one-on-one interviews that took place in person or over the telephone. Data were collected in either English, Spanish, and Haitian Creole.

Confidentiality was a primary concern. Only the Healthy Start Care Coordinator had access to the client's personal information. When both sections of the surveys were complete they were mailed to the Principal Investigator. Once in the possession of the Principal Investigator, the surveys were stored in a secure, locked safe to which the Principal Investigator was the only person with access. In addition, all survey data was saved on a jump drive and when not in use was placed in a secure, locked safe that only the Principal Investigator was able to access.

Measurement of the Variables

Independent Variables: Social Capital

As a variable, social capital suffers from having no universally accepted definition, measurement method or recognized indicators (Sabatini, 2008). Moreover, social capital is a multidimensional concept that "incorporates diverse phenomena such as culture, institutions, social norms, and networks of interpersonal relationships" (Sabatini, 2008, p. 1). However, there are certain accepted observable variables by which social capital is typically measured. For the purpose of this study, social capital is a construct measured by the latent constructs of: Trust/reciprocity, Civic Involvement and Social Networking as perceived by the respondents (Wan & Lin, 2003).

Trust is defined by the extent to which a respondent feels that most people can be trusted or that you can't be too careful in dealing with people (TrustP), trust of people in neighborhood (TrustN) and trusting Healthy Start Care Coordinators (TrustHS). "Reciprocity (is) defined by the extent to which the respondent reports having benefited from participating in public activities or programs (Benefit), having learned about specific medical services available in the community (Learn), and sharing a sense of common goals and interests in promoting health (Shared) with others in the community" (Wan & Lin, 2003, p. 167). The constructs of Trust and Reciprocity are combined into one construct of Trust, as they share similar characteristics. Civic Involvement is a similar concept of associational membership (Kawachi et al., 1997, 1999; Lochner et al., 2002), engagement in politics (Putnam, 1995) and civic participation (Veenstra, 2002). The construct of Civic Involvement was measured by how many times in the previous 12 months the respondent actively participated in: community projects (Project); volunteered (Volunteered); had friends over to the home (Friends); attended religious services such as church, bible study, prayer group, revivals (Religious); attended school events such as sports, clubs, PTA (SchoolEvents); attended non-school related children's activities such as Pop Warner, little league, lessons (ChildrensActivities); visited a salon such as hair, manicure, pedicure, massage, spa (Salon); attended a movie (Movie); watched television (TV); attended a festival/parade (Festival); attended a sports event (Sports); went to a shopping mall (Mall) or attended health fairs/ health seminars (HealthFair). The construct of Social Networking was measured by how many times in the previous 12 months the respondent actively: sent or received email (Email); text messaged (TextM); blogged (Blog) or visited MySpace or similar website (MySpace).

Dependent Variables: Pregnancy Outcomes

The variables for pregnancy outcome are frequency of accessing Healthy Start services (HSaccess); infant's birth weight (Babyweight), which is divided into low birth weight (LBW) and normal birth weight (NBW) in variable (BirthWei); preterm delivery/ gestational age (Weeks), which is divided into normal and preterm in variable (Preterm); type of delivery: vaginally or C-section (Delivered); APGAR score (APGAR); infant's health status at 28 days old (Babyhealth); and whether the infant has had a scheduled appointment with a pediatrician (PedVisit).

The variables listed were used to evaluate the health status of the infant post-delivery and are based largely on the presence of preterm delivery, low birth weight or neonatal infant mortality. Preterm delivery is based on gestational age. An infant born at or less than 37 weeks is considered preterm. Low birth weight is classified as weighing less than 5 ½ lbs, and infant mortality for the purposes of this research study as death within the first 28 days of birth. Birth weight and gestational age were both operationalized as dichotomous and continuous variables in order to examine individual maternal characteristics that are mediating factors.

Table 1. Operational Definitions for Independent and Dependent Variables: Maternal Indicators

Dependent Variables	Operational Definition
Pregnancy outcome	<p>Access to Healthy Start services Less than once per month = 1 About once per month = 2 Twice per month = 3</p> <p>Birth weight = birth weight of infant Actual grams (answer was given in pounds & ounces and converted to grams)</p> <p>Low birth weight = Categorized depending on weight Low birth weight = 1 Normal birth weight = 2</p> <p>Gestational age = weeks Actual weeks of gestation</p> <p>Preterm = gestation 37 weeks or less Gestation 37 weeks or less = 1 Gestation 38 weeks or greater = 2</p> <p>Type of delivery Vaginal delivery = 1 C-section delivery = 2</p> <p>APGAR = actual score on test reported by mother</p> <p>Baby health = healthy at 28 days of birth Healthy = 1 Health Problems = 2</p> <p>Pediatrician visit completed at 28 days No or no but pediatrician visit scheduled = 1 Yes pediatrician visit completed = 2</p>
Independent Variables	Operational Definition
Maternal social capital	<p>24 variables comprise (Trust, Civic involvement, Social Networking variables) Scaled 0-95 0 = lowest; 95 = highest</p>

Control Variables	Operational Definition
Maternal Risk Factors	(PLEASE NOTE: These variables are asked on the Florida Health Start Prenatal Risk Screening Survey and was developed based on the requirements of Florida Statute 383.14. The survey and hence the variables were decided upon by the Florida Department of Health).
Survey language	English = 1 Spanish = 2 Haitian Creole = 3
Street address zip code	Street address zip code
Age in years	Age in years.
Marital status	Are you married? Yes = 1 No = 2
Education	Have you graduated from high school or received a GED? Yes = 1 No = 2
Maternal weight at birth	When you were born, did you weigh 5 ½ lbs or less? Yes = 1 No = 2
Maternal weight before pregnancy	Actual weight in grams (answer was given in pounds and ounces and all answers were converted to grams)
Maternal height	Actual height in inches (answer was given in feet and inches and all answers were converted to inches)
First pregnancy	Is this your first pregnancy? Yes = 1 No = 2 If no, give date your last pregnancy ended Actual month and year Include live birth, stillbirth, miscarriage, abortion Live birth = 1 Still birth = 2 Miscarriage = 3 Abortion = 4

Control Variables	Operational Definition
Insurance status/coverage	Is your prenatal care covered by? Health Insurance/ HMO/PPO = 1 Medicaid = 2 Other Health Insurance (Military, Indian Health, etc. = 3 No coverage = 4
Problem keeping health appts.	Do you have any problems which prevent you from getting your health care or social service appts? If yes, what is the problem? Yes = 1 No = 2 Actual problem
Moving	Have you moved more than 3 times in the last 12 months? Yes = 1 No = 2
Feel Safe	Do you feel unsafe where you live? Yes = 1 No = 2
Hungry	Do you or a member of your household go to bed hungry? Yes = 1 No = 2
Tobacco Use	In the last 2 months, have you used any form of tobacco? Yes = 1 No = 2
Alcohol Use	In the last 2 months, have you used drugs or alcohol (including beer, wine, mixed drinks)? Yes = 1 No = 2
Hit or hurt	In the last year, has anyone hit you or tried to hurt you? Yes = 1 No = 2
Stress level	How do you rate your current stress level? (a) Low = 1 (b) Medium = 2 (c) High = 3
Timing of pregnancy	If you could change the timing of this pregnancy, would you want it.... (a) Earlier = 1 (b) Later = 2 (c) Not at all = 3 (d) No change = 4

Control Variables	Operational Definition
Adoption	Have you considered adoption for this pregnancy? Yes = 1 No = 2
Depression	Do you have problems with depression? Yes = 1 No = 2
Mental health	Do you have a history of receiving mental health counseling? Yes = 1 No = 2
Partner employed	Is your partner employed? Yes = 1 No or N/A = 2
Annual household income	If you added together the yearly incomes, of all members of your household for last year, 2006, what is your annual household income (the dollars you earned per year)? Dollars earned per year. Don't know = 1 Refused = 2
Employment status	What is your employment status? Employed or employed but on maternity leave = 1 Unemployed = 2
Overall health	How would you describe your overall health these days? Would you say it is excellent, very good, good, fair, or poor, don't know or refused? Excellent = 1 Very good = 2 Good = 3 Fair = 4 Poor = 5 Don't Know = 6 Refused = 7
Race	Black or African American = 1 White = 2 Hispanic or Latino = 3 Haitian Creole = 4 Other = 5
Race2	White = 1 Non-White = 2
Presence of father	Is the father of this pregnancy involved? Yes = 1 No = 2
Previously involved in Healthy Start	Have you been involved in the Healthy Start program in the past? Yes = 1 if yes, how many times: No = 2

Table 2: Operational Definitions for Independent and Dependent Variables: Pregnancy Outcome

Dependent Variables	Operational Definition
Birth weight	<p>Access to Healthy Start services Less than once per month = 1 About once per month = 2 Twice per month = 3</p> <p>Very Low Birth weight (VLBW) Infants are born weighing less than 1,500 grams (3 lbs. 5 oz), they are classified as having very low birth weight.</p> <p>Low Birth weight (LBW) Infants that are born between 2,500 grams (5 lbs. 8 oz.) and 1,500 grams (3 lbs. 5 oz.) are classified as being of low birth weight.</p> <p>Normal Birth weight (NBW) Infants that are born above 2,500 grams (5 lbs. 8 oz.)</p> <p>VLBW = 1 LBW = 2 NBW = 3</p>
Preterm (Gestational Age)	<p>Gestation 37 weeks or less = 1 Gestation 38 weeks or greater = 2</p>
Delivered	<p>Type of delivery Vaginal = 1 C-section = 2</p>
APGAR score	<p>Scored 0 - 10</p>
Baby Health	<p>Infant health at 28 days postnatal Healthy = 1 Health Problems = 2 (Health problems included: common cold, ear infection, sniffles, colic, jaundice, fetal monitor, NICU, Cleft palate, fetal alcohol syndrome, RSV, Birth defect, Deceased, Don't Know, Other)</p>
Pediatrician Visit	<p>Schedule appointment with pediatrician No or no but appointment scheduled = 1 Yes = 2</p>

Statistical Analysis

Data were computed and analyzed using the Statistical Program for Social Sciences (SPSS, version 12.0), and AMOS 18.0. Path analysis and structural equation modeling were used to analyze the data.

One of the main advantages of path analysis is that it can be used to examine the direct and indirect effects of variables upon each other. The path analysis technique uses a structural equation model to specify the causal relationships among a set of variables. Path analysis employs path diagrams. A path diagram is a pictorial representation of a system of simultaneous equations. The main advantage of the path diagram is that it presents a picture of the relationships between the study variables that are assumed to hold. The actual construction of the causal model should be based on the knowledge of the subject matter and the researcher's interpretation of current theory in his/her field, the researcher must state where causal relationships exist between two variables and what the direction of that relationship is. In essence, each included linkage implicitly represents a hypothesis that can be tested by estimating the magnitude of the relationship. Path coefficients can be interpreted as the net change in the dependent variable affected by a one standard deviation change in a predetermined variable. The path analysis uses the structural equations which represent the causal processes of the model to estimate the linkage between endogenous and exogenous variables through the calculation of path coefficients. Path coefficients (b_{ij}) are standardized Ordinary Least Square (OLS) regression coefficients. The squared path coefficient (b^2) indicates the proportion of the variance of a dependent variable that the determining variable is directly responsible for (Land, 1969) (Wan, 2006, class notes, Principles of Path Analysis).

Structural equation modeling was selected for its rigor in theory testing versus theory development (Kline, 2005). In addition, it is also suited to determining the correlation strength of variables in a causal relationship. Given the multidimensionality of maternal social capital, structural equation modeling was selected as an assessment technique given its suitability to such constructs (Sabatini, 2008).

The analyses used to address the research questions and hypotheses of this study were done in five stages. First, descriptive univariate analysis were conducted for all individual and composite variables (means, standard deviations and frequencies). In addition, to determine skewness, the distribution of the data was analyzed for problems.

Second, the individual level variables were analyzed using Pearson's correlation coefficients to determine the strength and direction of the relationships between variables. Third, variables were collapsed into indices to develop constructs such as trust, reciprocity, civic involvement, social networking social capital, and pregnancy outcomes. Fourth, path diagrams were developed to map the constructs of maternal risk factors, maternal social capital and pregnancy outcome to determine the relationships that exist between the three.

Finally, in order to assess the validity of the research questions and the hypotheses it was necessary to fit the data and predict the variance in the dependent variable. Path models were developed and then a structural equation model was utilized to assess the fit of the model.

Limitations

This study confined itself to surveying high-risk pregnant women who were participating in a Healthy Start Care Coordination Program in Orange County, Florida to assess their risk status and social capital level. The sampling problem with this method is the homogeneity of the people who participated. Therefore the data do not have a full distribution but are skewed to the left.

Women are referred to the Healthy Start program after completing the Healthy Start Prenatal Risk Screening instrument. However, according to an analysis of the entire Florida 2001 birth cohort, Black mothers and those older than 39 are less likely to receive prenatal screening by their health care provider (Clark & Thompson, 2004). Yet those demographics are the very ones found to be associated with higher risk for adverse outcomes. Thus the first step in identifying a sample of pregnant women at risk for adverse outcomes is compromised (Clark & Thompson, 2004).

The generalizability of this research will be difficult, given the small sample size from one program, in one locale of the country. Another concern of generalizability is based on the data sample, which comprises individuals residing in 29 of the total zip codes in the county. While the data were collected as a census of those prenatal clients entering the Healthy Start program, not all zip codes were represented, and thus the sample is not representative of the entire community. However, it can be considered representative of Healthy Start participants. Additionally, generalizability will be difficult due to the inconsistency of the theoretical approaches, empirical strategies, sampling designs and question wording in previous research on social capital (Sabatini, 2008, p. 4; Wuthnow, 2002).

One of the limitations of this research is the lack of a control group of pregnant women not participating in the Healthy Start program. However, several research studies have compared the pregnancy outcomes of Healthy Start clients with those of non-clients (McCormick, Deal, Devaney, Chu, Moreno, Raykovich; 2001; Salihu, Mbah, Jeffers, Alio & Berry, 2009), allowing some cautious comparisons. Also, there was no randomized control trial or long term follow-up to determine if infant mortality occurs within the first 365 days of life.

Another limitation of this study relates to medical evaluation of health status of the mother just before conception. That information was not available since the women in the study sample are referred to the Healthy Start program by their health care provider after the first prenatal visit. A practical limitation is the lack of a thorough assessment of the maternal health-related quality of life. To administer the SF-36 or the SF-12 to all the Orange County, Florida Healthy Start clients would have added impractical length to the survey. However, self-reported health, which was used as a measure, has been shown to be a valid measure of general health.

However, the primary limiting factor for this research is the small sample of 112 Healthy Start cases. Once cases with missing variables and those that dropped the program were deleted, there were a total of 92 cases. Even though data collection was a census of the prenatal Healthy Start clients and continued for 13 consecutive months, there were still only 112 total cases. In evaluating the differences between the cases that dropped versus completed the program there were 19 cases that dropped and 92 cases that completed with one case that had to be deleted due to the number of missing variables. Comparison of the dropped versus completed groups posed a problem in terms of significance because of the small sample size. An equally challenging problem was the homogeneity of the data set which made it difficult to determine variances.

CHAPTER FOUR: FINDINGS

Introduction

This chapter presents the findings of the data analysis. It contains detailed demographics of the study population. The analysis identifies factors that influence maternal risk factors, maternal social capital and pregnancy outcomes.

Presentation of the Findings

The study survey asked questions of the program participants to determine the level of pregnancy risk of both the woman and the fetus. Maternal risk factors such as pre-pregnancy weight; alcohol, drug, and tobacco use; having been hit, experience of hunger, stress level, and timing of the pregnancy were identified in order to assess their effects of maternal social capital on pregnancy outcome.

Descriptive univariate analyses were conducted for all individual and composite variables (means, standard deviations and frequencies). To determine skewness, the distribution of the data was analyzed. The individual-level variables were then analyzed using correlation coefficients to determine the strength and direction of the relationships between variables, and crosstabulations were run to further explore the detailed relationships between the variables. Variables were collapsed into constructs of: trust, civic involvement, social networking, social capital, maternal risk factors and pregnancy outcome. Then path diagrams and structural equation models were developed to map the relationships between the constructs of Maternal risk factors, Maternal social capital and Pregnancy outcome.

Finally, to assess the validity of the research questions and the hypotheses it was necessary to fit the data and predict the variance in the dependent variable. The path models and structural equation models were used to assess the fit of the model.

Descriptive Analyses

Demographic Characteristics of the Orange County Healthy Start Population

Descriptive univariate analyses were conducted for all individual and composite variables (means, percentages and frequencies). In addition, to determine skewness, the distribution of the data was analyzed.

During the year-long census of the Orange County Healthy Start program, 112 pregnant women were surveyed at least once during the pre-and post-testing periods. Table 4 presents the information obtained from a descriptive analysis of frequencies and percentages for the demographic items on the survey instrument.

The survey items on age, race, marital status, education, maternal employment status, household income, partner's employment, involvement of father of the pregnancy, survey language, mom's birth weight, pre-pregnancy weight, first pregnancy, health status, insurance type, problems with health appointments, moving more than 3 times, feeling unsafe, hunger, use of tobacco, use of drugs or alcohol, having been hit or hurt, stress level, timing of pregnancy, considered adoption, depression, and mental health counseling obtained demographic information shown in the literature to be factors affecting pregnancy outcomes. These high-risk demographic factors are presented in Table 4.

Detailed Descriptive Analysis of Orange County Healthy Start Client

Healthy Start clients are referred on the basis of maternal risk factors identified at initial prenatal medical visits in all parts of Orange County. The program's client base came however, from only 29 of the total zip codes in Orange County. Several zip codes had clusters of Healthy Start participants. In the 108 surveys that provided zip codes, the five most frequent were 32808, with seventeen participants (15.7%); followed by 32824, with eleven participants (10.2%); then 32811, with nine participants (8.3%) and equal frequencies and percentages in both 32805 and 32837, with seven participants each (6.5% each). The rest of the clients were sparsely distributed throughout the remaining 24 zip codes.

Table 3: Zip Codes of Healthy Start Participants, August 2007 – September 2008

Zip Code	Frequency	Percent	Valid Percent
32703	6	5.4	5.6
32712	3	2.7	2.8
32751	3	2.7	2.8
32789	3	2.7	2.8
32792	1	0.9	0.9
32798	1	0.9	0.9
32801	2	1.8	1.9
32803	2	1.8	1.9
32804	1	0.9	0.9
32805	7	6.3	6.5
32806	2	1.8	1.9
32807	1	0.9	0.9
32808	17	15.3	15.7
32809	1	0.9	0.9
32810	4	3.6	3.7
32811	9	8.1	8.3
32818	1	0.9	0.9
32819	1	0.9	0.9
32821	2	1.8	1.9
32822	6	5.4	5.6
32824	11	9.9	10.2
32825	2	1.8	1.9
32828	2	1.8	1.9
32835	1	0.9	0.9
32836	2	1.8	1.9
32837	7	6.3	6.5
32839	6	5.4	5.6
34786	1	0.9	0.9
34787	3	2.7	2.8
Total	108	97.3	100.0
Missing	3		
Total	111	100.0	

Subjects ranged in age from 18 to 42 years. The mean age was 25.5 years old, with a median age of 24 years and two modes of 20 and 26 years. The breakout of age ranges reveals a cumulative percent age of 75.7% for program members between the ages of 18-29 years.

Therefore, while there is a range of 24 years among program members, most are in their late teens or twenties.

Program participants included equal numbers (41) of Black/African-American and Hispanic/Latino women (36.9%) in each of those groups. Whites comprised 23 (20.7%) of the population. The remaining six clients were evenly distributed between Haitian Creole (2.7%) and Other (2.7%).

Given the high percentage of Hispanic/Latino clients, requests to take the survey in a language other than English were low. Of the 111 valid surveys, 100 (90.1%) were taken in English and 11 (9.9%) in Spanish. The surveys were read aloud to the participant by their Care Coordinator in the language they requested; although Haitian Creole was a survey language option, none of the three Haitian Creole participants (2.7%) chose that language option.

The vast majority (86 or 77.5%) of Healthy Start clients reported being single; 25 (22.5%) stated they are married. With regard to education, 68 (61.3%) have graduated from high school or completed a GED and 43 (38.7%) have not. Most of the Healthy Start clients, 73 (65.8%), were not employed at the time of the survey. For 38 (34.2%) women who were employed, 9 (8.1%) were on maternity leave. Of the total 111 respondents, 65 (58.6%) stated they didn't know their household income, and 14 (12.6%) refused to provide information. Only 32 respondents who reported on (28.8%) household income, which ranged from zero to \$65,000 annually ($M = \$21,188$; $SD = \$16,297$). For that group, the median income provided was \$17,500, with \$20,000 being the mode.

Orange County Healthy Start Clients': Risk Factors for Pregnancy Outcome

Survey questions asked about the following risk factors that have been cited in the literature and are part of the data collected on the Florida Department of Health's Prenatal Risk Screen; mother's birth weight, pre-pregnancy weight, first pregnancy, health status, insurance type, problems with keeping prenatal care appointments, moving more than 3 times, feeling unsafe, hunger, use of tobacco, use of drugs or alcohol, having been hit or hurt, stress level, timing of pregnancy, considered adoption, depression, mental health counseling, partner employed and whether the father of the pregnancy is involved (see Table 4).

Another risk factor noted in previous research is whether the mother's own birth weight was five and one half pounds (5 ½ lbs) or less. If so, her infant is also at risk for having a low birth weight. Of the 111 respondents, 17 (15.3%) had low birth weight, 66 (59.5%) did not and 28 (25.2%) did not know.

For maternal pre-pregnancy weight there was a vast range, from 93 pounds to as high as 363 pounds: a range of 270 pounds with a standard deviation of 45 pounds. With this extreme range, the mean weight of the program participants was 154.4 pounds with the median and mode both being 145 pounds. There was also a wide range in heights from 57 inches to 70 inches. The mean height was 63.85 inches, with a median of 64 inches along and two modes of 62 and 63 inches. The standard deviation was 2.7 inches.

Interestingly, 72 (64.9%) of the Healthy Start clients reported that this was not their first pregnancy; 39 (35.1%) said it was their first pregnancy. Yet the vast majority, 93 (84.5%) of respondents had not previously participated in the Healthy Start program, 17 (15.3%) had.

The health status of the 111 respondents was mostly self-reported as good. Twelve (10.9%) considered themselves to have excellent health, followed by 35 (31.8%) who reported

very good health and the majority, 46 (41.8%), who reported good health; 13 (11.8%) reported fair health and only 3 (2.7%) reported poor health. One (.9%) claimed she didn't know her health status, and one person is missing from the analysis.

The overall majority of Healthy Start clients have Medicaid as their prenatal care insurance (79, 71.8%). The remainder is closely divided between those having health insurance or an HMO (13, 11.8%) and those with no health insurance (15, 13.6%). Three women had other forms of insurance either military or Indian health (3, 2.7%). Collectively, approximately 95 (86.4%) had access to prenatal care insurance and 15 (13.6%) had no insurance coverage.

Problems keeping prenatal care appointments are cited in the literature as a pregnancy risk factor. Of the women participating in the Orange County Healthy Start program, 13 (11.8%) had problems keeping their prenatal care appointments. The good news is that most (97 or 88.2%) kept their appointments.

Moving more than 3 times in a 12-month period is a pattern of instability that has been shown to be a risk factor for poor birth outcomes. Only four (3.5%) of the program participants reported that experience. The remainder (106, 96.4%) reported stable residence.

A relatively small number (11, 10%) of the women in the Healthy Start program felt unsafe at home; slightly fewer (7, 6.4%) had been hit or hurt in the last year. There is a statistically significant difference (.262**) between the women who later left the program and those who completed it on feeling unsafe at home.

Since proper nutrition is a primary factor in an infant's health, hunger experienced by pregnant women is a crisis for two. This negative factor was reported by only 2 (1.8%) of the women in the Healthy Start program. While the findings for this item are not statistically

significant, the mean social capital index score is lower for those women who go to bed hungry, 32.5 compared to 37.4, which is consistent with the research findings of Walker et al., (2007).

Additional risk factors are tobacco, drug and alcohol use. Thirteen of the Healthy Start clients (11.8%) smoked; whereas 97 (88.2%) did not. Drug/alcohol use within the previous 2 months was reported by 14 (12.7%). There was a statistically significant difference (.273**) between the women who later left the program and those who completed it, in the use of drugs or alcohol: using drugs or alcohol increased the likelihood of a person leaving the program by two and half times. Therefore additional attention should be given to women who self-report drug or alcohol use.

The literature review shows that stress while pregnant can have damaging consequences for birth weight and gestational age. Almost half of the women in the Healthy Start program (53, 48.2%), reported their stress level as low. Slightly fewer (47, 42.7%) reported a medium stress level and only a small percentage (10, 9.1%) reported high stress. Though 51.8% reported medium to high stress levels fewer (38, 34.5%) considered depression a current or past problem. Oddly, the number of women who had received mental health counseling was lower (22, 20.0%). There was a statistically significant difference (-.229*) between the women who left the program and those who completed it, in self-reported stress levels.

Whether a pregnancy is planned or not can influence how the mother feels about it and if the pregnancy is unwanted, the risk of a poor birth outcome rises. The majority of women in the program (58, 52.7%) would not change the timing of their pregnancy; 32 (29.1%) would have preferred it to be later; 9 (8.2%) would have preferred it to be earlier. Eleven (10.0%) did not want the pregnancy at all. Interestingly, of the 11(10.0%) who did not want their pregnancies,

only about half (5, 4.5%) considered adoption. The father was reported to be involved in the pregnancy by 85 women (76.6%), and 78 (70.3%) reported that their partner was employed.

Table 4: Descriptive Demographics

Characteristics	Total Healthy Start
Age (mean)	25.5 years
Race	
Black or African American	36.9%
White	20.7%
Hispanic or Latino	36.9%
Haitian Creole	2.7%
Other	2.7%
Survey Language	
English	90.1%
Spanish	9.9%
Marital Status	22.5%
Graduated from High School or GED	61.3%
Mother's Birth weight Less than 5 ½ lbs.	15.3%
Pre-pregnancy weight (mean)	154.4 lbs.
Mother's Height (mean)	63.8 inches
First Pregnancy	35.1%
Participated in Healthy Start Previously	15.5%
Employment Status	
Employed	26.1%
Employed but on maternity leave	8.1%
Unemployed	65.8%
Income	
Don't Know	58.6%
Refused	12.6%
Provided income information	28.8%
Health Status	
Excellent	10.9%
Very good	31.8%
Good	41.8%
Fair	11.8%
Poor	2.7%
Don't Know	.9%
Insurance Type Covering Prenatal Care	
Health insurance/ HMO	11.8%
Medicaid	71.8%
Other health insurance: military, Indian health	2.7%
No coverage	13.6%
Problems Keeping Prenatal Care Appointments	11.8%
Moved More Than 3x in 12 months	3.6%

Characteristics	Total Healthy Start
Feels Unsafe in Home (.262**)	10.0%
Been Hit	6.4%
Hungry	1.8%
Tobacco Use	11.8%
Drug/ Alcohol Use (.273**)	12.7%
Stress Level (-.229*)	
Low	48.2%
Medium	42.7%
High	9.1%
Change Timing of Pregnancy	
Earlier	8.2%
Later	29.1%
Not at all	10.0%
No change	52.7%
Consider Adoption	4.5%
Depression	34.5%
Received Counseling	20.0%
Partner Employed	70.3%
Father Involved	76.6%

Orange County Healthy Start Clients' Maternal Social Capital

To assess maternal social capital, questions were asked about trust, reciprocity, civic involvement and social networking. Although a total of 24 questions were later collapsed into a social capital index, the individual scores for each variable are also presented for review (see Appendix). The 24 questions were used to determine the constructs of trust/reciprocity, civic involvement and social networking that were used to make up social capital. Answers to the first question on trust, about a person's level of trust for people in general, show that the majority of Healthy Start clients do not trust people in general, with 68 (61.3%) answering "You can't be too careful." A very small group (14, 12.6%) reported that "people can be trusted," with the remaining respondents unevenly divided between responses of "depends" (27, 24.3%) and "don't know" (2, 1.8%). The women who later left the program appear to be the most distrustful; none said that people can be trusted, as compared to 15% of the women who completed the program.

The other two variables relating to trust are “trust of neighbors” and “trust of Healthy Start Care Coordinators.” Again the aggregate numbers tell a different story from the responses delineated by the categories of dropped vs. completed the program. For the aggregate, a very small group “trusts their neighbors a lot” (6, 5.4%). However, when the data are distinguished, the women completing the program are the ones who trust their neighbors, but the group who later left the program does not, with none having answered that question positively. The largest number of responses for the answer of “trusts their neighbors some” (52, 46.8%). This was followed by 28 (25.2%) who stated that they “trust their neighbors not at all” and 25 (22.5%) who stated that they “trust them only a little.”

With regards to trust levels it appears that the majority of the women in the Healthy Start program trust the care coordinators. Of the 111 women, 87 (78.4%) “trust their care coordinators a lot,” followed by 20 (18.0%) who “trust them some.” Three (2.7%) “trust them only a little” and one (.9%) “trusts them not at all.” Notably, among the group who later left the program, the majority (63.2%) trusted their care coordinator a lot, a lower percentage than among the group who completed the program (81.5%).

Other components measured for a person’s social capital are the level of reciprocity they exhibit and the involvement in civic and social activities. To assess reciprocity of the Healthy Start clients, they were asked about their perceptions of the benefit from participating. Other questions were how much they had learned about maternal and child health issues and resources and how often they shared what they learned with other pregnant women. A large number, 88 (79.3%) reported they benefited from the program “all of the time,” with the remaining distributed between “most of time” (16, 14.4%), “some of the time” (6, 5.4%) and “a little of the

time” (1, .9%). Interestingly, the results had almost the same distribution for those completing the program and those who left. No client selected the answer, “benefited none of the time.”

The second component of reciprocity is whether a client reported learning about maternal and child health and resources available within the community. About 73% (81) of the respondents answered the amount learned had been “extreme” (47, 42.3%) or “quite a bit” (34, 30.6%). Other responses were fairly evenly divided between “moderately” (11, 9.9%), “a little bit” (9, 8.1%), and “not at all” (10, 9.0%). An unexpected result for this variable is a comparison of the women who left the program and those who completed it. Among those who left, about 79% responded at the top two levels for amount learned, whereas only 46% did for the group that completed. This reveals that the clients who left the program valued it.

The final survey question about a woman’s reciprocity is whether she shared the information learned in the Healthy Start program with other pregnant women. This may be the most telling response since it gauges whether the information was valuable enough to pass along to others. The majority of the clients (59, 53.2%) shared the knowledge they learned at least 2-4 times, 2 (1.8%) reported sharing 5-9 times, 6 (5.4%) shared 10-18 times, 4 (3.6%) shared 19-40 times and 2 (1.8%) shared 41-80 times. The women who later left the program reported less frequent sharing, with 68% sharing 2-4 times. The forgoing results from the reciprocity questions reveal that women in the Healthy Start program who don’t trust people in general nevertheless trust the Healthy Start Care Coordinator and that many of those who left the program valued it.

Another social capital variable is the frequency of an individual’s civic involvement over a 12-month period, which was assessed by 13 questions: whether someone worked on a community project, volunteered, had friends to their home, attended religious services, school

events, children's activities, went to a salon, to a movie, watched TV, attended a festival/parade, a sports event, a shopping mall or health fairs/health seminars.

The great majority of the women (88, 79.3%) "never" participated in a community project over a 12-month period. Eighteen (16.2%) had worked on a community project once, 4 (3.6%) had done such activities monthly, and 1 (.9%) person had done so daily. The number of women who had volunteered in the past 12 months was higher; about 43% had done some level of volunteering either daily (2, 1.8%), weekly (3, 2.7%), monthly (12, 10.8%), or yearly (31, 27.9%). However the majority (63, 56.8%) had not volunteered during the past year. This picture changes dramatically for the women who later left the program who were 3 times as likely to report having volunteered once during the past year. Since the extent that someone volunteers has been shown to be a predictor of social capital, this finding suggests that women who left the program have greater social capital than do those who completed it.

The level of someone's social interaction with friends can indicate the type of support or network system they can access. Almost 76% of the women were social having friends visiting their homes at least monthly. The distribution was 19 (17.1%) having friends over daily, 28 (25.2%), doing so weekly, and slightly more (37, 33.3%) having friends over monthly. The remaining 24% had friends over once (11, 9.9%) or never (16, 14.4%). The pattern of sociability also differs for the women who later left the program; of those women, about 84% entertained friends at least monthly as compared to 74% of those who completed the program. Thus a higher percentage of women who left the program than of those completing it have access to social support networks.

The frequency of attendance at religious functions serves as a measure of the social support a person can access. Most of the women in the program (45, 40.5%) attended religious

activities weekly. The remainder is divided between attendance monthly (18, 16.2%), yearly (22, 19.8%) or never (25, 22.5%). Responses to this question also revealed a level of support for the women who left the program: about 58% attended services weekly as compared to 37% of those who completed the program. This is one more indication that a high percentage of the women who left the program had support networks beyond the Healthy Start program.

Attending and participating in school events is noted in the literature as an indicator of the level of social capital (Putnam, 2000). Among the study population, there appears to be little interest in school events. About 80% had never attended or attended only once. The majority (76, 68.5%) had not attended a school event in the past year, and a few (13, 11.7%) had attended at least once. At the opposite level were those who reported such participation daily (1, .9%), weekly (3, 2.7%) or monthly (18, 16.2%).

There also appear to be even fewer of the women who participated in children's organized activities that are not school related, such as children's sports like Pop Warner, little league or other lessons. Almost 87% of the respondents stated that they had never participated in children's activities or had participated only once in the past year. Equal numbers participated weekly and monthly (8, 7.2%) and none reported daily participation in organized children's activities.

In response to the survey question about visiting a salon over half (60, 54%) of the women in the Healthy Start program reported doing so weekly or monthly. This number increases when segmented by those who dropped the program. Among the women who later left the Healthy Start program, about 68% visited a salon at least monthly, as compared with 51% of those who completed the program.

Attending a movie in the past year was a question also used to determine level of social involvement. Only 21 (18.9%) said they had not attended a movie in the past year. The rest reported attending once (24, 21.6%), monthly (41, 36.9%), weekly (19, 17.1), or daily (6, 5.4%). The women who later left the program were twice as likely to attend a movie monthly as were the group who completed the program, which suggests that the former group has higher income and/or more leisure time.

For watching television the group's responses were highly uniform, with 102 (91.9%) watching television daily. Among the group who left, 84% watch television daily as compared to 94% of those who completed Healthy Start. High levels of television watching have been shown to correlate with lower social capital (Putnam, 2000).

Attending festivals or parades was used to determine how much an individual participated in committee-based, social activities, which Putnam (2000) found to be associated with higher levels of social capital. The majority (65, 58.6%) of the Healthy Start clients had attended a festival or parade only once in the past year.

Findings in the literature (Seippel, 2006; Uslander 1999) support a link between sports and social capital. The majority of the women in the Healthy Start program (64, 57.7%) have not participated in organized sports in the past year.

The frequency with which the women went to a shopping mall was assessed. The majority (60, 54.1%) said they went monthly. As to participation at health fairs, a large majority (71, 64%) did not attend any in the past year.

The last component of social capital to be assessed was the level of social networking. This was done by measuring frequency of e-communication over a 12-month period. According to Hopkins, Thomas, Meredyth and Ewing (2004), on-line forms of communication have the

ability to build community and generate forms of social capital that typically are not researched. Email and text messages, chat room discussions, blogs and MySpace-type websites are examples of social networking that individuals can access social support. Forms of communication varied within the population depending on whether the women dropped or completed the program.

Email communication was high, with 49 (44.1%) sending or receiving daily. An additional 16 (14.4%) email weekly, 6 (5.4%) email monthly, 7 (6.3%) email yearly and 33 (29.7%) have never emailed. The women who later left the program reported more email use. Including daily, weekly and monthly use, 74% used email, vs. only 62% of those who completed the program.

While the women also used text messaging, the number of those who text messaged daily (49, 44.1%) and of those who had never used it (41, 36.9%) were roughly equal. The remaining 19% were divided between who had sent/received a text message only once in the past year (4, 3.6%), those who sent/received them monthly (6, 5.4%) and those who sent/received them weekly (11, 9.9%). There was a wide and statistically significant difference (-.197*) between the text messaging by the women who later left the program and by those who completed it: 21% of the women who left had never used text messaging as compared to 40% of those who completed the program.

In addition there was a dramatic difference between the daily usages of text message among the women who later left the Healthy Start program: 68% text messaged daily as compared to 39% for those who completed the program. When text messaging rates are reviewed in relation to maternal social capital levels, there appears to be a positive correlation between text usage and social capital levels. For example, for women who never text and those who text daily, the mean social capital indices are 31.27 and 42.29, respectively. In addition, increases in

text usage tracked mean maternal social capital scores. The mean social capital index for women who text yearly is 30.75, for those doing so monthly is 37.67, for those doing so weekly is 40.55, and those doing so daily is 42.29. These statistically significant findings support previous research on e-forms of communications can be indicators of social capital levels (Hopkins et al., 2004).

Table 5: Mean Social Capital Index Scores Based on Text Message Usage

Text Message Usage	Mean Social Capital Index
Never	31.27
Once/Yearly	30.75
Monthly	37.67
Weekly	40.55
Daily	42.29

While the group has relatively high rates of email and text message usage, the same is not true for chat room discussions, blogs or MySpace. The percentages of Healthy Start clients who have never used these forms of e-communication are extremely high. For example, 96 (86.5%) have never been in a chatroom discussion, 102 (91.9%) have never been to a blog and 72 (64.9%) have never been to MySpace or a similar type of website. Only 18 (16.2%) participate daily in a MySpace-type website. The mean social capital index is consistently quite a bit higher for women who use those forms of e-communication than for those who never do. The mean social capital index for women who blog daily is 46.50, as compared to 36.66 for those who never do so. The biggest distribution is for women who participate in daily chat room discussions. They have a mean social capital index of 50.33 as compared to 36.25 for those who never enter a chat room discussion. Mean social capital index scores for daily users of MySpace or similar types of websites are 45.22 as compared to 34.21 for those who never use them.

These findings support the results found by Ellison, Steinfield and Lampe (2007), who found there was “a positive relationship between certain kinds of Facebook use and the maintenance and creation of social capital” (p. 1161), although without identifying the direction of the causation.

Pregnancy Outcomes: Frequencies and Percentages

The primary outcome measure is birth weight of less than 2500 grams, which was recorded on the survey of 92 Healthy Start clients conducted 30-45 days postnatal. Since preterm birth is highly correlated to low birth weight, gestational age is the second major outcome variable. Because infant birth weight and gestational age were reported by the mother and therefore based on her memory, those data were highly suspect to human error. Other pregnancy outcome variables are monthly access rates of Healthy Start Care Coordinators, type of delivery (vaginal or C-section), APGAR score, infant health at 28 days, and pediatrician visit completed or scheduled visit.

The weight at birth is often seen as the most important birth outcome. For the total 92 births, 13 (14%) were low or very low birth weight. This percentage is higher than the Orange County rate of low birth weight of 9.1% and the state of Florida rate of 8.7%. For the prenatal clients in the 2007-2008 Orange County Healthy Start study the mean birth weight was 6 lbs. 10.6 oz. (3021.5 grams), slightly less than the national mean during a similar timeframe, which was 7 lbs 4 oz. The minimum birth weight that was recorded in the sample was 1 lb. 10 oz. (737.1 grams), and the maximum was 9 lbs 7 oz (4280.8 grams), a very large range.

The second major birth outcome is gestational age at the time of delivery. As with birth weight, the data is reported by the mother, so there is the possibility of human error. When

reviewed in the aggregate, the mean gestational age for the sample was almost 38 weeks, with both median and mode at 38 weeks. However, there was a very wide range of 17 weeks, with the minimum being 25 weeks and the maximum 42 weeks.

Of the total 92 births, 26 (28%) were preterm (37 weeks or less), with the remainder within the normal gestational period of 38 weeks or more. In comparison to Orange County and the state of Florida only 15.4% and 14.2%, respectively, of all births for 2005-2007 were preterm.

The majority of the 92 women who completed the Healthy Start program (54, 59.3%) accessed its services about once per month. However, the women in the Orange County Healthy Start population had notably more C-sections than occurred in Orange County or the state population. For example, according to Florida Department of Health statistics reported in a system referred to as CHARTS, in 2005-2007 about 35.4% of women in Orange County and 36.0% of women in the state of Florida had a C-section delivery compared to 45.7% for the Healthy Start population during that period.

Information about the infant's Activity, Pulse, Grimace, Appearance & Respiration (APGR) score was requested from the mother about one-month after the birth. Most of the respondents stated that they didn't know or left the question blank. From the consequently small reporting sample size (32) it was difficult to make any determinations. Fifteen (47%) scored a 9, and one (3%) scored a 2.

The mother was also asked about the baby's health 28 days post birth. The question originally asked the mother to check all that applied from a list of ailments. Later the question was collapsed into a dichotomous variable of healthy and health problems. All responses that were originally scored as: 1) healthy, 2) no problems and 3) healthy but currently has a common

cold or illness (i.e. ear infection, sniffles) were recoded into the healthy category. All responses that were scored as colic, jaundice, fetal monitor, NICU, cleft palate, fetal alcohol syndrome, RSV, birth defect, deceased, or other (a blank was provided for the person to write in the ailment) were recoded as having health problems. There were a total of 89 responses and 3 missing. Most (73, 79%) of the 92 babies born to participants in the Healthy Start program were healthy, with no problems. However, 16 (17%) did have health problems, and 3 (3%) responses were missing. One infant was reported having died.

The final birth outcome question asked in the survey was whether a pediatrician visit had been completed, not completed or not completed but scheduled within one month's time. A pediatrician had seen 82 (90%) of the infants, at the time of the post-natal survey.

Table 6: Comparison of Pregnancy Outcomes for Orange County Healthy Start Clients, 2007-2008, Orange County, State of Florida, 2005-2007, and National, 2007

	Healthy Start Clients* (N=92, unless otherwise specified)	Orange County**	State of Florida**	National***
Birth weight				
Mean		Not Available	Not Available	
All races	6 lbs. 10 oz. (3022 g)			7 lbs. 4 oz. (3298 g)
Black	6 lbs. 6 oz. (2890 g)			6 lbs. 13 oz. (3100 g)
White	6 lbs. 16 oz. (3160 g)			7 lbs. 6 oz. (3357 g)
Hispanic	6 lbs. 12 oz. (3050 g)			7 lbs. 4 oz. (3302 g)
Haitian Creole	6 lbs. 14 oz. (3128 g)			
Other	8 lbs. 7 oz. (3827 g)			
Median		Not Available	Not Available	Not Available
All races	6 lbs. 13 oz. (3090 g)			
Black	6 lbs. 11 oz. (3020 g)			
White	6 lbs. 15 oz. (3130 g)			
Hispanic	6 lbs. 15 oz. (3147 g)			
Haitian Creole	6 lbs. 7 oz. (2920 g)			
Other	8 lbs. 7 oz. (3827 g)			
Mode	6 lbs. 11 oz. (3033 g)	Not Available	Not Available	Not Available
Mode	6 lbs. 14 oz. (3118 g)	Not Available	Not Available	Not Available
% Very Low Birth Weight	5.6%	1.7%	1.6%	1.5% (2007)
% Low Birth Weight	14.4%	9.1%	8.7%	8.2 (2007)
Preterm	28.0%	15.4%	14.2%	12.7% (2007)
Gestational Age	38 weeks			
C-Section	45.7%	35.4%	36%	31.8% (2007)
Infant Mortality (Neonatal)	1.0%	5.0%	4.6%	
APGAR score (N = 32)				
Mean	8.65	Not Available	Not Available	Not Available
Median	9.00	Not Available	Not Available	Not Available
Mode	9.00	Not Available	Not Available	Not Available

*Dissertation Data 2007-2008

**Florida Department of Health: FL CHARTS 2005-2007

*** National Vital Statistics Report 2007: (Hamilton, Martin & Ventura, 2009)

While the possible comparisons are not exact, a study by McCormick et al., (2001) research provides some level of analysis between the Healthy Start population and a relatively comparable groups, mother's using WIC. McCormick et al., (2001) conclude that a major benefit for Healthy Start clients is the support through case management during pregnancy. The study reported that Healthy Start clients were more satisfied with their prenatal care than were the non-client group. The findings by McCormick et al., (2001) showed that as compared to the non-client group, Healthy Start clients had "greater sociodemographic risk for an adverse pregnancy outcome than did other women on WIC, and they were less likely to receive prenatal care in a private office or health maintenance organization (HMO), instead relying more heavily on a hospital, health center, or other clinics. They were also more likely to see a midwife as part of their prenatal care. Both groups were equally high users of prenatal services. Healthy Start program clients were more likely to receive expanded prenatal care services such as counseling on all health topics, case management, WIC during pregnancy, and all postpartum teaching topics. They were more likely to be using a contraceptive at the time of the interview, to receive income assistance from food stamps and welfare, and to rate their infants as having less than excellent health. Otherwise the groups were similar" (McCormick et al., 2001, p. 1975).

Table 7: Comparison of Orange County Healthy Start Clients Sociodemographics with Clients from a Previous Healthy Start Study

% Distribution	Healthy Start Program Status		
	Orange Co. Clients (N=111)	Clients (N=1347)	Nonclients (N=1329)
Maternal age <20y	9.9	25.0	15.2
Maternal education less than high school	38.7	45.6	36.2
African American	36.9	83.8	66.6
Household income			
Missing	73.9	17.0	16.8
Never married or not currently married	77.5	67.8	53.9
Type of insurance			
Medicaid	71.8	73.7	67.4
None	13.6	4.3	3.0
Smoking in pregnancy	11.8	31.4	32.0
Alcohol use in pregnancy	12.7	16.4	11.7
Drug use in pregnancy	12.7	29.8	25.8
Barriers to PNC	11.8	15.2	13.3
Well-baby care not started	9.9	18.6	20.7

(Adapted from McCormick et al., 2001, p. 1976)

Correlation Coefficients and Crosstabulations

As previously describe, the second step in data analysis was to analyze individual-level variables using correlation coefficients to determine the strength and direction of the relationships between variables. The rationale for doing so is founded on the Perinatal Paradox, which states that even though increasing money and social services are applied to the problem, rates of poor pregnancy outcomes in the United States still plague us as a society (Rosenblatt, 1989). Furthermore, the Healthy Start program though nearly two decades old, is vastly understudied, as are the program participants. Therefore, the second step of the analysis is an

effort to provide more knowledge about the nuances of the Healthy Start population, through an in-depth review of the correlations among the survey variables (see Appendix).

Development of Constructs

The third step in data analysis was to develop the constructs of: maternal risk factors, maternal social capital (comprising: trust/reciprocity, civic involvement and social networking) and pregnancy outcome.

Measurement Model: Maternal Risk Factors (Figure 4 – Figure 5)

The hypothesized measurement model of maternal risk factors included the following variables: survey language (Surveylang); mother's own birth weight below 5 ½ lbs (Born); prenatal care insurance (PreInsurance); problems keeping prenatal care appts (Problems); moving more than 3 times in 12 months (Moved); feeling unsafe at home (Unsafe); hunger (Hungry); tobacco use (Tobacco); drug/alcohol use (Drugs); having been hit or hurt (Hit); stress level (Stress); timing of pregnancy (Timing); considering adoption (Adoption) depression (Depression); received counseling (Counseling); health status (Health); participated in Healthy Start in the past and number of times been in Healthy Start in the past (HStart). The desired outcome is for the pregnancy outcome index to have a Cronbach's Alpha of .70 or greater (Santos, 1999). The reliability scale produced from the nineteen risk variables was .584.

Measurement Model: Second Order Factor: Maternal Social Capital (Figure 6 – Figure 7)

To assess the levels of social capital of women in the Orange County Healthy Start program, the following variables were evaluated to measure the latent outcome variable: Maternal Social Capital. Trust people (TrustP); trust neighbors (TrustN); trust Healthy Start care

coordinators (TrustHS); benefit (Benefit); learn (Learn); share (Share); worked on a community project (Project); volunteered (Volunteered); friends to the home (Friends); religious services (Religious); attended school Events (SchoolEvents); attended children's activities (Activities); visited a salon (Salon); attended a Movie (Movie); watched TV (TV); at a festival or parade (Festival); at a sports events (Sports); at a shopping mall (Mall) and attended health fair or health seminars (HealthFair); used Email (Email); used text messaging (TextM); participated in a Chatroom (Chatroom); Blog (Blog); and MySpace (MySpace) were used in the measurement model. The desired outcome for the social capital construct was to have a Cronbach's Alpha of .70 or greater (Santos, 1999). The reliability scale produced from the twenty-four variables was .710, which is acceptable

Measurement Model: Trust/Reciprocity (Figure 8 - Figure 9)

To determine the levels of trust/reciprocity of women in the Orange County Healthy Start program, the following variables were evaluated to measure the latent outcome variable: Trust. Trust people (TrustP); Trust neighbors (TrustN); and Trust Healthy Start care coordinators (TrustHS); Benefit (Benefit); Learn (Learn); and Share (Share) were used in the measurement model. The desired outcome for the trust/reciprocity construct was to have a Cronbach's Alpha of .70 or greater (Santos, 1999). However, the reliability scale produced from the six variables was (.463).

Measurement Model: Civic Involvement (Figure 10 – Figure 11)

To determine the levels of civic involvement of women in the Orange County Healthy Start program, the following variables were evaluated to measure the latent outcome variable: civic involvement. Worked on a community project (Project); volunteered (Volunteered);

friends to the home (Friends); religious services (Religious); attended school Events (SchoolEvents); attended children's activities (Activities); salon (Salon); Movie (Movie); watched TV (TV); festival or parade (Festival); sports events (Sports); shopping mall (Mall) and health fair or health seminars (HealthFair) were used in the aforementioned measurement model. The desired outcome for the civic involvement construct was to have a Cronbach's Alpha of .70 or greater (Santos, 1999). However, the reliability scale produced from the thirteen variables was (.702).

Measurement Model: Social Networking (Figure 12 – Figure 13)

To assess the social networking of women in the Orange County Healthy Start program, the following variables were evaluated to measure the latent outcome variable: social networking. Email (Email); Text messaging (TextM); Chatroom (Chatroom); Blog (Blog) and MySpace (MySpace). The desired outcome for the social networking construct was a Cronbach's Alpha of .70 or greater (Santos, 1999). However, the reliability scale produced from the five variables was (.670).

Measurement Model: Pregnancy Outcomes (Figure 14 – Figure 15)

The hypothesized measurement model for pregnancy outcomes included the following variables: access to Healthy Start services (Access), birth weight (Baby Weight), gestational age (Weeks), type of delivery (Delivered), APGAR score (AGPAR), infant's health within the first 28 days (Baby Health) and whether the infant had a pediatrician visit (PedVisit). The desired outcome for the pregnancy outcome construct was a Cronbach's Alpha of .70 or greater (Santos, 1999). However, the reliability scale produced from the six variables was (.206).

Path Analysis

The fourth step in data analysis was to use path diagrams to map relationships between the constructs of maternal risk factors, maternal social capital and pregnancy outcome. To evaluate the validity of the research questions and hypotheses, the following models were developed: maternal risk factors, maternal social capital (trust, civic involvement and social networking) and pregnancy outcome.

Analytical Methods

Path models were used to review the 92 cases to determine the impact of maternal social capital on pregnancy outcome. Statistical analyses used SPSS 12.0 and AMOS 18.0 software. The models will be generated using measurement models and covariance structure models which produced different variances and goodness of fit models. In evaluating the outputs, the following measures were used: maximum likelihood estimates; squared multiple correlations; chi-square, and degrees of freedom (CMIN/DF); goodness of fit (GFI) and adjusted goodness of fit (AGFI); Bentler and Bonett normed fit index (NFI); Tucker-Lewis index (TLI); comparative fit index (CFI); parsimony ratio (PRATIO); the root mean square error (RMSEA); Hoelter (.05) and Hoelter (.01).

Goodness of Fit Statistics Used to Interpret Models

To determine whether a model is a good fit to the data, several output statistics are reviewed. In this research the following results and described ranges were the desired output. The first goodness of fit statistics reviewed are the following: Chi-square value (χ^2), Degrees of freedom (DF), and Chi-square statistic divided by the degrees of freedom (CMIN/DF).

“The chi-square statistic is an overall measure of how much the implied and sample covariances differ, and is at least 0 (and that occurs only with a perfect fit). The more the implied and sample covariances differ, the bigger the chi-square statistic, and the stronger the evidence against the null hypothesis” (Arbuckle & Wothke, 1995-1999, pg. 97).

In order to determine significance the p statistic was reviewed. The confidence level for model fitness is tested at the .01 or .05 level (Byrne, 2001) to determine whether the proposed model fits the data (Byrne, 2001). Kline (2005) comments that the goal of the researcher is to fail to reject the null hypothesis.

Degrees of freedom (DF) “is the number of degrees of freedom for testing this model” (Arbuckle & Wothke, 1995-1999, pg. 396). The Chi-square statistic divided by the degrees of freedom is as follows: (χ^2 /df). According to Wheaton et al., (1977), if the χ^2 -to-degrees-of-freedom ratio is in the range of 2 to 1, or 3 to 1, it indicates acceptable fit between the hypothetical model and the sample data (Arbuckle & Wothke, 1995-1999, pg. 399). However, “different researchers have recommended using ratios as low as 2 or as high as 5 to indicate a reasonable fit” (Marsh & Hocevar, 1985).

The goodness of fit (GFI) index was “devised by Joreskog and Sorbom (1984) for ML and ULS estimation, and generalized to other estimation criteria by Tanaka and Huba (1985)... GFI is always between zero (0) and unity (1), where unity indicates a perfect fit” (Arbuckle & Wothke, 1995-1999, pg. 412). It is generally accepted that a GFI value of .9 or greater is the desired level. When evaluating the adjusted goodness of fit (AGFI) it is “bounded by one, which indicates a perfect fit it is not however, bounded below zero, as the GFI is” (Arbuckle & Wothke, 1995-1999, pg. 413).

The Parsimony-adjusted measure (PRATIO) “expresses the number of constraints in the model being evaluated as a fraction of the number of constraints in the independence model” (James, Mulaik and Brett, 1982; Mulaik, et al, 1989; Mulaik, 1989; Arbuckle & Wothke, 1995-1999, pg. 397). A Tucker-Lewis index (TLI) value close to 1 indicates a very good fit (Arbuckle & Wothke, 1995-1999, pg. 409).

The root mean error approximation (RMSEA) takes “the square root of the resulting ratio (and) gives the population ‘root mean square error approximation,’ called RMS by Steiger and Lind and RMSEA by Browne and Cudeck (1993), ... Practical experience has made us feel that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom. This figure is based on subjective judgment. It cannot be regarded as infallible or correct, but it is more reasonable than the requirement of exact fit with the RMSEA = 0.0. We are also of the opinion that a value of about 0.08 or less for the RMSEA would indicate a reasonable error of approximation and would not want to employ a model with a RMSEA greater than 0.1 (Browne and Cudeck, 1993)” (Arbuckle & Wothke, 1995-1999, pg. 402-403).

The Hoelter (.05) and Hoelter (.01) levels should be 200 or higher, and factor loadings for all variables should be .30 or higher. For use in the following models the threshold of .30 or higher was the criterion for retaining a variable in the model (Brown, 2006). Those factor loadings below the .30 threshold were eliminated (except in cases when the model fit deteriorated and then they were retained), and then revised models were created.

Measurement Models

Measurement Model: Maternal Risk Factors (Figure 4)

The measurement model of maternal risk factors produced the following goodness of fit statistics. The following values were produced: CMIN = 151.779; DF = 119; CMIN/DF = 1.275; GFI = .845; AGFI = .800; NFI = .276; TLI = .492; CFI = .556; PRATIO = .875; RMSEA = .055; Hoelter (.05) = 88 and Hoelter (.01) = 95. This model had several variables where the factor loadings fell below the .30 threshold: survey language (.16), mom's birth weight (.15), prenatal insurance (-.15), problems (.20), unsafe (-.08), hunger (-.04), drugs (-.01), stress (-.13), moved (.26), timing of pregnancy (.29), depression (.25), received counseling (.20), and health status (-.17). Therefore a revised model was needed.

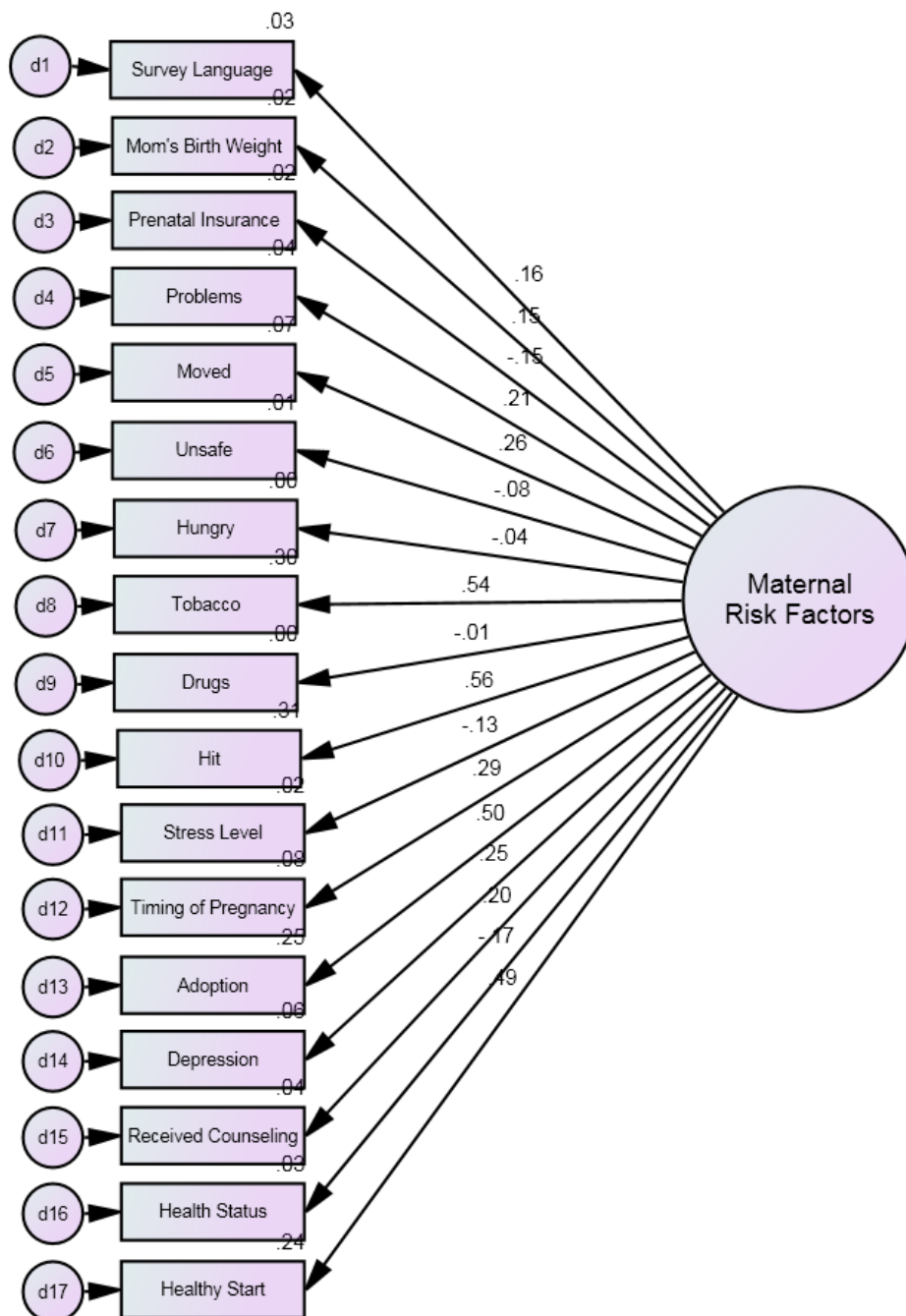


Figure 4: Measurement Model of Maternal Risk Factors

Revised Measurement Model: Maternal Risk Factors (Figure 5)

The outputs for the revised measurement model of maternal risk factors produced the following goodness of fit statistics: CMIN = .328; DF = 2; CMIN/DF = .164; GFI = .998; AGFI = .991; NFI = .991; TLI = 1.171; CFI = 1.000; PRATIO = .333; RMSEA = .000; Hoelter (.05) = 1664 and Hoelter (.01) = 2557. Given those goodness of fit statistics, this model fit the data well.

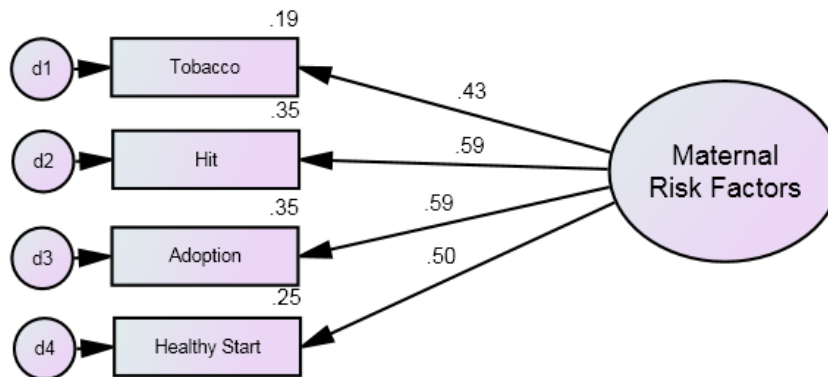


Figure 5: Revised Measurement Model for Maternal Risk Factors

Measurement Model: Subcomponent of Social Capital: Trust (Figure 6)

To develop the measurement model of trust, a model was run that produced the following goodness of fit statistics: CMIN = 4.938; DF = 9; CMIN/DF = .549; GFI = .983; AGFI = .960; NFI = .787; TLI = 1.828; CFI = 1.000; PRATIO = .600; RMSEA = .000; Hoelter (.05) = 312 and Hoelter (.01) = 400. One factor loading fell below the .30 threshold (Learn = .22). It was deleted, and a revised model was run.

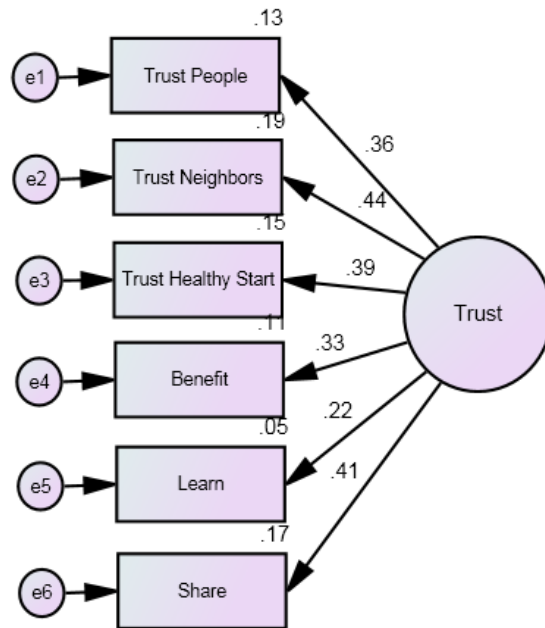


Figure 6: Measurement Model of Trust

Revised Measurement Model: Subcomponent of Social Capital: Trust (Figure 7)

To develop the revised measurement model of trust, a model was run that produced the following goodness of fit statistics: CMIN = 2.728; DF = 5; CMIN/DF = .546; GFI = .988; AGFI = .964; NFI = .856; TLI = 1.508; CFI = 1.000; PRATIO = .500; RMSEA = .000; Hoelter (.05) = 370 and Hoelter (.01) = 504. This model was retained since it produced the best fit to the data.

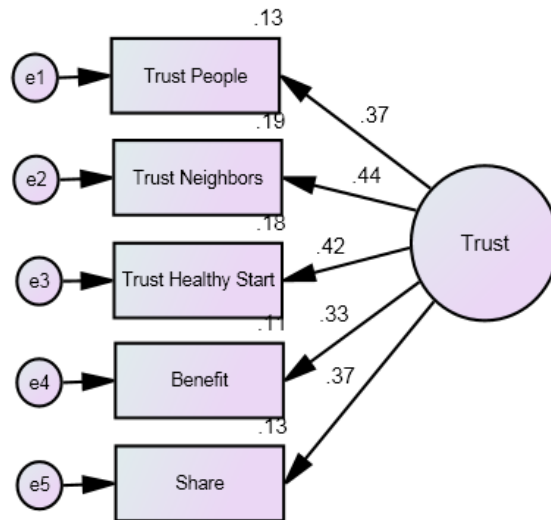


Figure 7: Revised Measurement Model of Trust

Measurement Model: Subcomponent of Social Capital: Civic Involvement (Figure 8)

To develop the measurement model of civic involvement, a model was run that produced the following values: CMIN = 124.121; DF = 65; CMIN/DF = 1.910; GFI = .823; AGFI = .752; NFI = .495; TLI = .577; CFI = .648; PRATIO = .833; RMSEA = .100; Hoelter (.05) = 63 and Hoelter (.01) = 70. Since many of those results were not within acceptable limits, the model was judged to have an unacceptable fit to the data. The factor loadings were then reviewed over several revised models. The following variables fell below the .30 threshold and therefore were deleted from the final revised measurement model: (Friends = .28; Religious = .24; Movie = .29; TV = -.07; and Mall = .27). The model was revised a second time, and the variables (Salon, Sports, Health Fair) were deleted due to low factor loading to produce the final revised model.

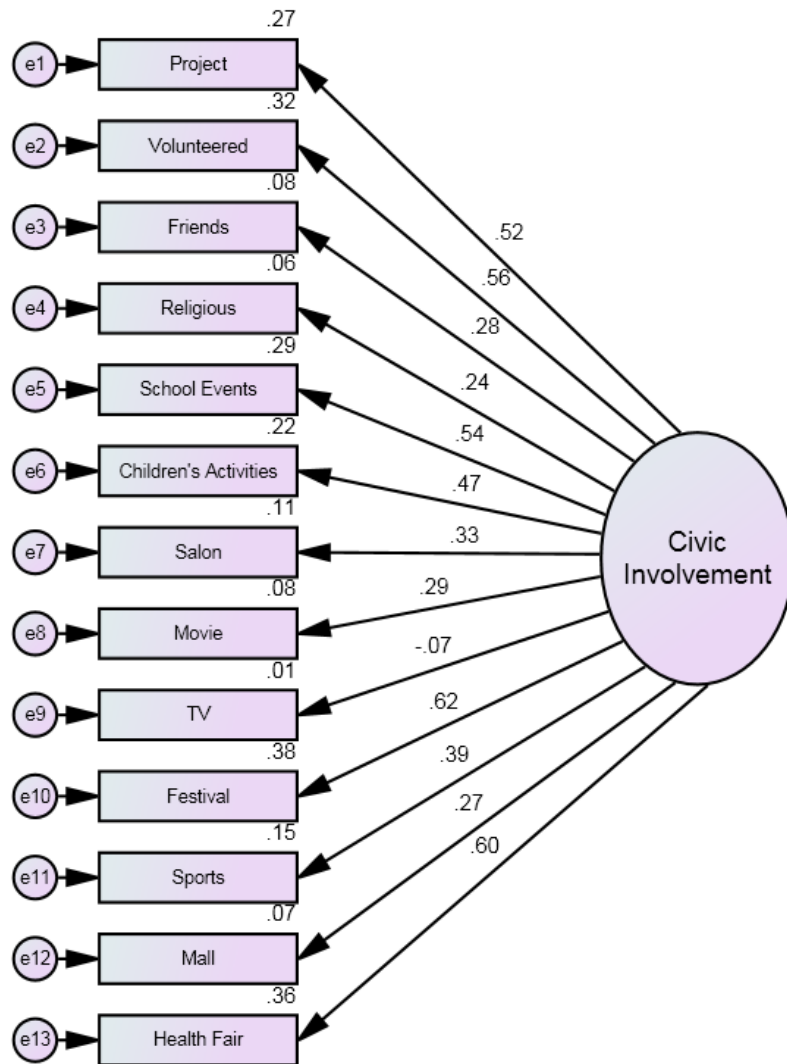


Figure 8: Measurement Model of Civic Involvement

Revised Measurement Model: Subcomponent of Social Capital: Civic Involvement (Figure 9)

The final revised measurement model for civic involvement produced the following goodness of fit statistics after variables had been deleted from the model due to low factor loadings: CMIN = 6.091; DF = 5; CMIN/DF = 1.218; GFI = .975; AGFI = .925; NFI = .928; TLI = .971; CFI = .985; PRATIO = .500; RMSEA = .049; Hoelter (.05) = 166 and Hoelter (.01) = 226. The final model produced the best fit to the data.

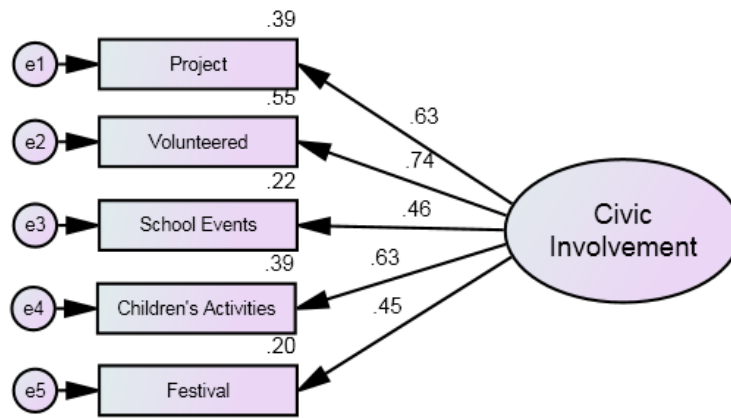


Figure 9: Revised Measurement Model of Civil Involvement

Measurement Model: Subcomponent of Social Capital: Social Networking (Figure 10)

To develop the measurement model of social networking a model was run that produced the following values: CMIN = 19.443; DF = 5; CMIN/DF = 3.889; GFI = .919; AGFI = .756; NFI = .783; TLI = .637; CFI = .819; PRATIO = .500; RMSEA = .178; Hoelter (.05) = 52 and Hoelter (.01) = 71. Since the majority of those values were outside acceptable limits, this model was judged to have an unacceptable fit to the data. Though none of the factor loadings were below the .30 threshold in the generic model, the variable (Blog) was deleted from the model based on the high P value, to better fit the data to the model.

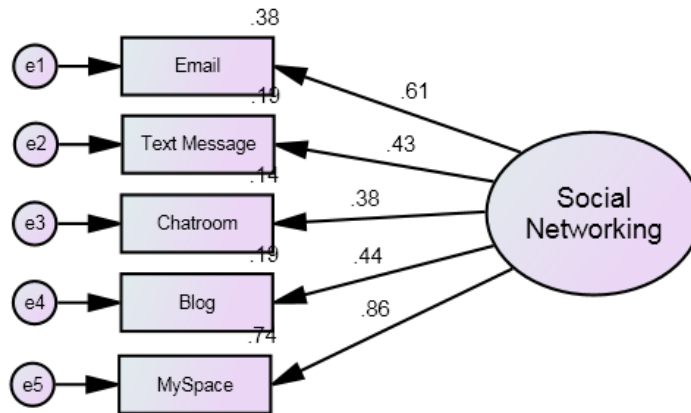


Figure 10: Measurement Model of Social Networking

Revised Measurement Model: Subcomponent of Social Networking (Figure 11)

To develop the revised measurement model of social networking, a model was run that produced the following goodness of fit statistics: CMIN = 3.219; DF = 2; CMIN/DF = 1.609; GFI = .984; AGFI = .920; NFI = .948; TLI = .935; CFI = .978; PRATIO = .333; RMSEA = .082; Hoelter (.05) = 170 and Hoelter (.01) = 261. The revised model was considered to have the best fit to the data.

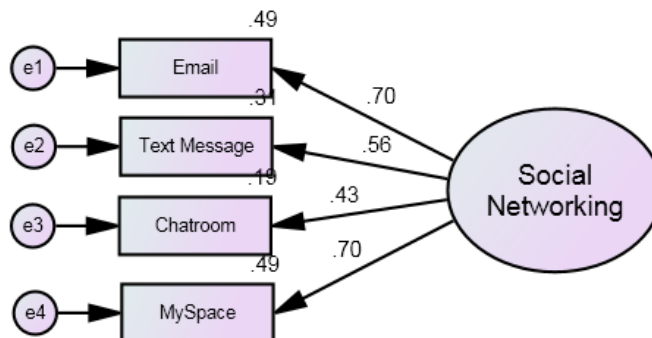


Figure 11: Revised Measurement Model of Social Networking

Social Capital: Second Order Factor Analysis (Figure 12)

To develop the second order factor analysis for social capital, a model was run that produced the following goodness of fit statistics: CMIN = 107.139; DF = 74; CMIN/DF = 1.448; GFI = .865; AGFI = .809; NFI = .595; TLI = .766; CFI = .809; PRATIO = .813; RMSEA = .070; Hoelter (.05) = 81 and Hoelter (.01) = 90. The model was revised to achieve a better fit of the data by deleting the following variables due to low factor loadings: Benefit = -.13, Share = .02. The variable, Trust Healthy Start, was retained even though the factor loading was below .30 since the model began to deteriorate when it was removed.

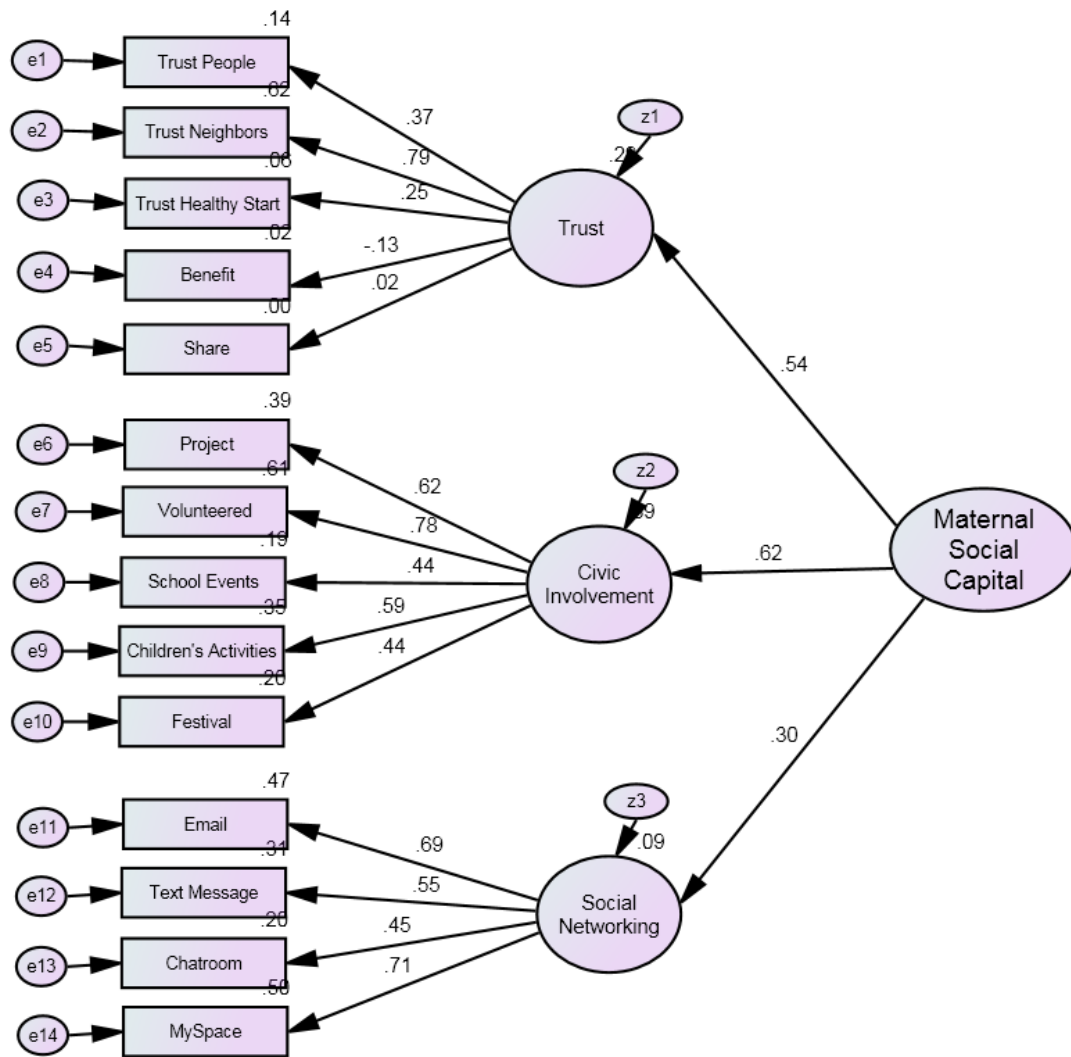


Figure 12: Social Capital: Second Order Factor Analysis

Revised Social Capital: Second Order Factor Analysis (Figure 13)

To develop the revised second order factor analysis for social capital, a model was run that produced the following goodness of fit statistics: CMIN = 42.366; DF = 47; CMIN/DF = .901; GFI = .931; AGFI = .885; NFI = .809; TLI = 1.042; CFI = 1.000; PRATIO = .712; RMSEA = .000; Hoelter (.05) = 138 and Hoelter (.01) = 156.

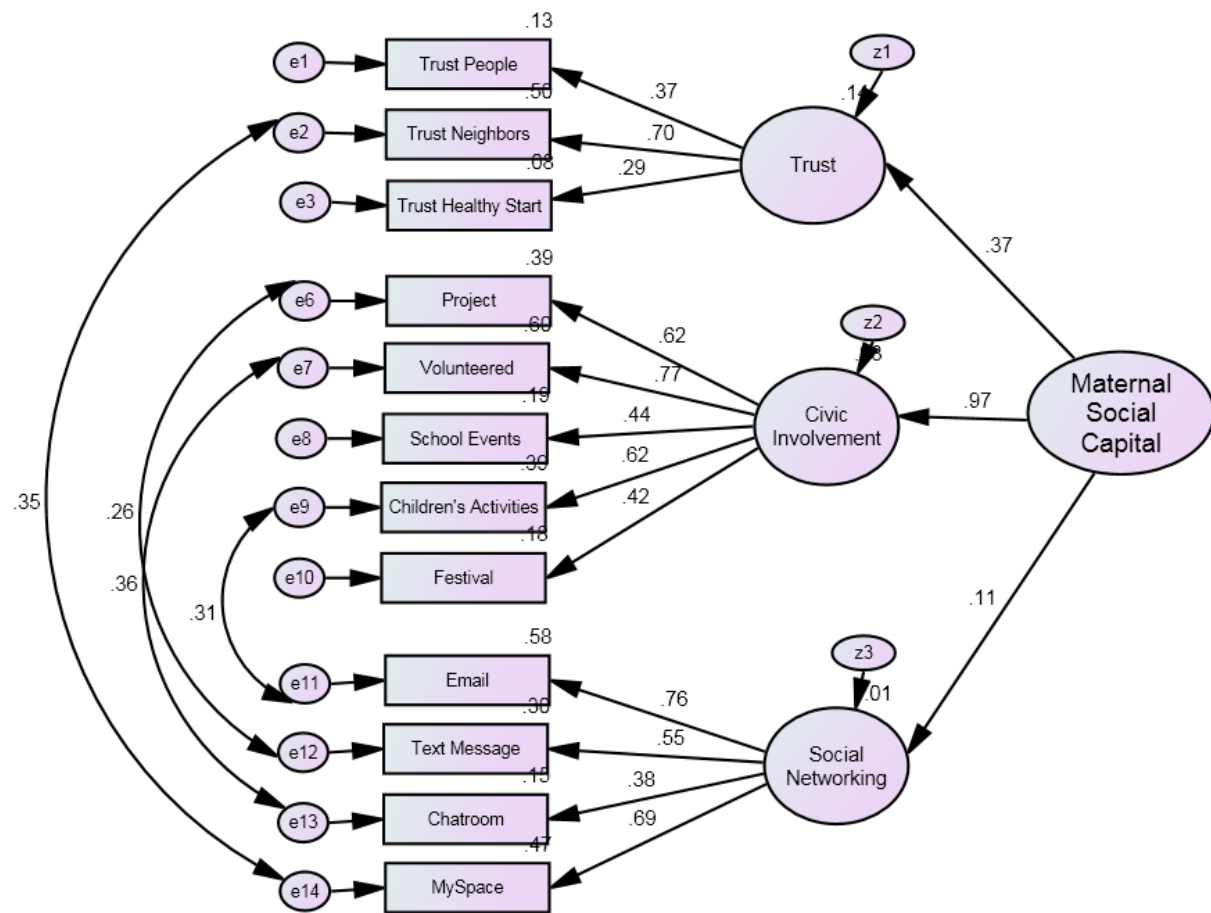


Figure 13: Revised Social Capital: Second Order Factor Analysis

Measurement Model: Pregnancy Outcome (Figure 14)

When the measurement model for pregnancy outcome was run it produced the following goodness of fit statistics: CMIN = 12.595; DF = 14; CMIN/DF = .900; NFI = .895; TLI = 1.030; CFI = 1.000; PRATIO = .500; RMSEA = .000; Hoelter (.05) = 172 and Hoelter (.01) = 211. The variable (APGAR) was deleted from the model because of the high number of missing cases. Three variables (Healthy Start access = .07; type of delivery = .06; and pediatrician visit = .02) had factor loadings that were below the .30 threshold. However, once the error terms were

correlated, only the variable (PedVist) was deleted for the revised model, since retaining the other two variables (Healthy Start access and Type of delivery) achieved the best model fit.

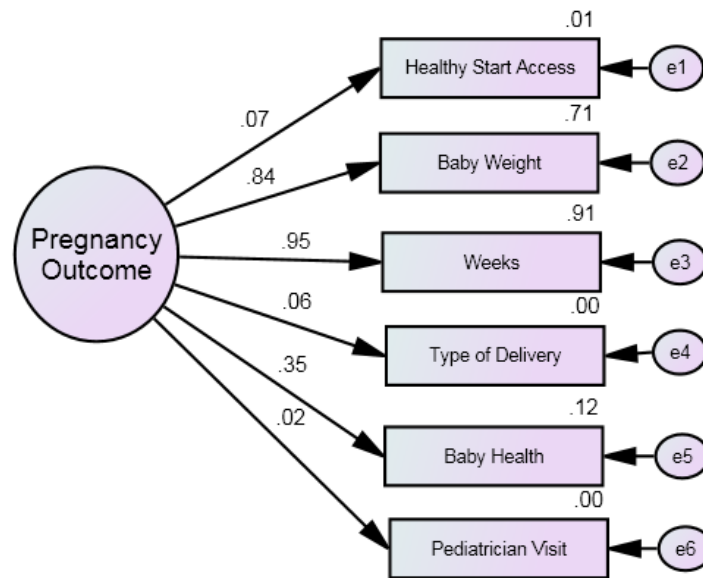


Figure 14: Measurement Model: Pregnancy Outcome

Revised Measurement Model: Pregnancy Outcome (Figure 15)

The revised measurement model for pregnancy outcome produced the following goodness of fit statistics: CMIN = 1.190; DF = 4; CMIN/DF = .297; GFI = .995; AGFI = .981; NFI = .989; TLI = 1.068; CFI = 1.000; PRATIO = .400; RMSEA = .000; Hoelter (.05) = 726 and Hoelter (.01) = 1016. Although two variables (Healthy Start Access and Type of Delivery) had factor loadings below the .30 threshold, the revised model had the best fit to the data.

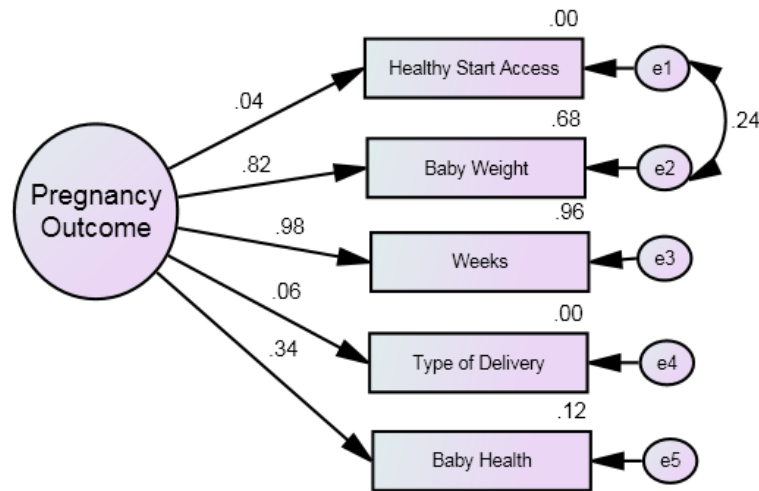


Figure 15: Revised Measurement Model: Pregnancy Outcome

Structural Equation Model

The final step in data analysis to assess the validity of the research questions and the hypotheses was to fit the data and predict the variance in the dependent variable. Structural equation modeling was utilized to assess the fit of the model.

For structural equation models, a literature review helps to specify variables for development and validation in a measurement model and a covariance structure model. Anderson and Gerbing (1988) “proposed that in undertaking LISREL-based theory testing, researchers should first assess the validity for the building blocks of the theory (i.e. confirm the falsifiability of the constructs and variables embedded in propositions and hypotheses) by separate estimation and where necessary respecification of the measurement model and only afterwards simultaneously estimate the measurement and structural submodels. When a theory is evaluated the boundary between theory construction and theory testing often becomes blurred. As such, theorists have the responsibility to ensure that their hypotheses and propositions contain

constructs and variables which can be researched.” Structural equation modeling was selected as a statistical test due to its ability to test theory based on observed variables and latent constructs.

Structural Equation Model: Maternal Risk Factors, Maternal Social Capital and Pregnancy Outcome (Figure 16)

The structural equation model for maternal risk factors, maternal social capital and pregnancy outcome produced the following goodness of fit statistics: CMIN = 260.276; DF = 187; CMIN/DF = 1.392; GFI = .809; AGFI = .764; NFI = .477; TLI = .714; CFI = .745; PRATIO = .890; RMSEA = .066; Hoelter (.05) = 77 and Hoelter (.01) = 83. The model was revised with correlated error terms. Though three of the variables had factor loadings below .30, they were retained in the revised model for theoretical reasons.

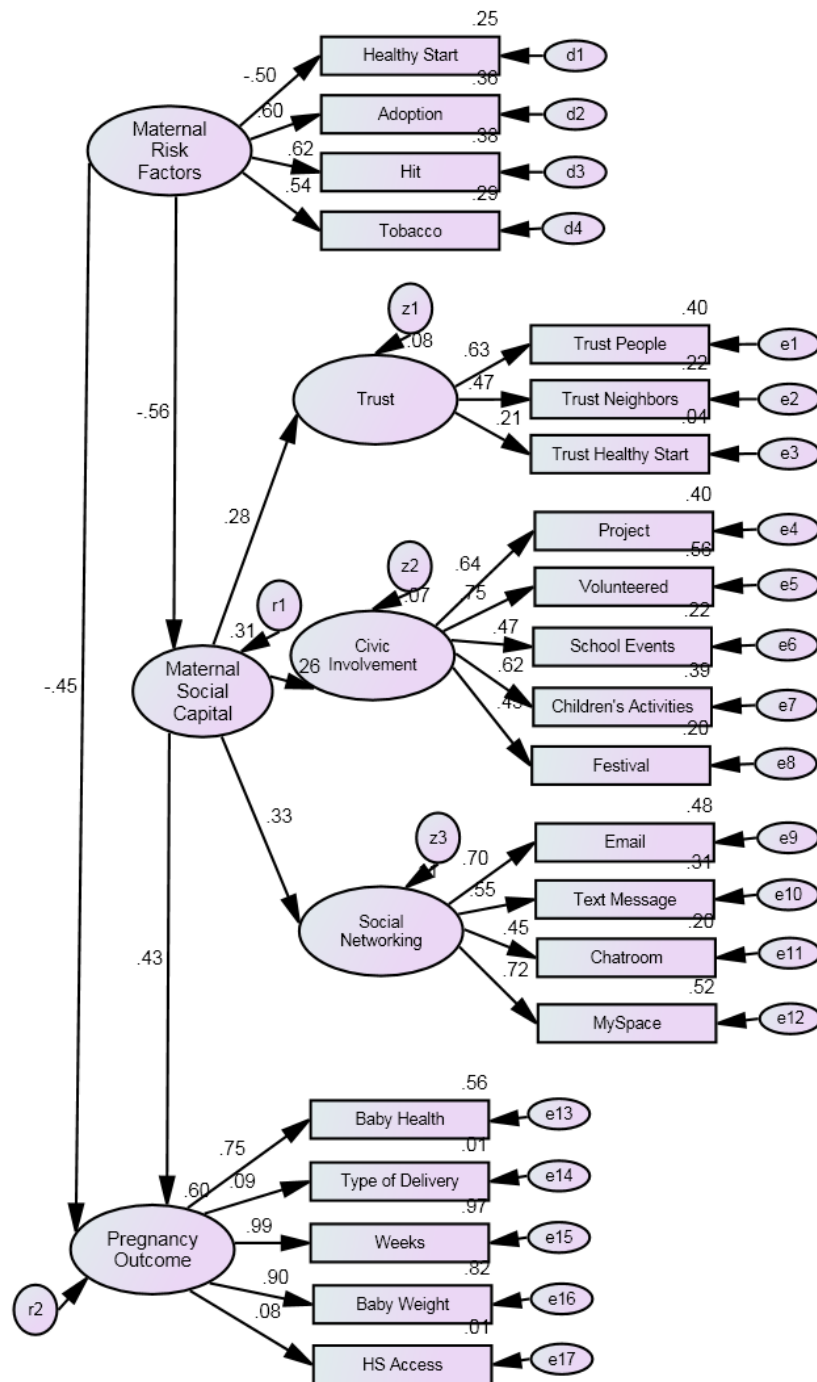


Figure 16: Structural Equation Model: Maternal Risk Factors, Maternal Social Capital and Pregnancy Outcome

Revised Maternal Risk Factors, Maternal Social Capital and Pregnancy Outcome (Figure 17)

The revised structural equation model for maternal risk factors, maternal social capital and pregnancy outcome produced the following goodness of fit statistics: CMIN = 172.455; DF = 143; CMIN/DF = .997; GFI = .863; AGFI = .817; NFI = .653; TLI = 1.002; CFI = 1.000; PRATIO = .824; RMSEA = .000; Hoelter (.05) = 109 and Hoelter (.01) = 116. The revised model achieved the best fit of the data.

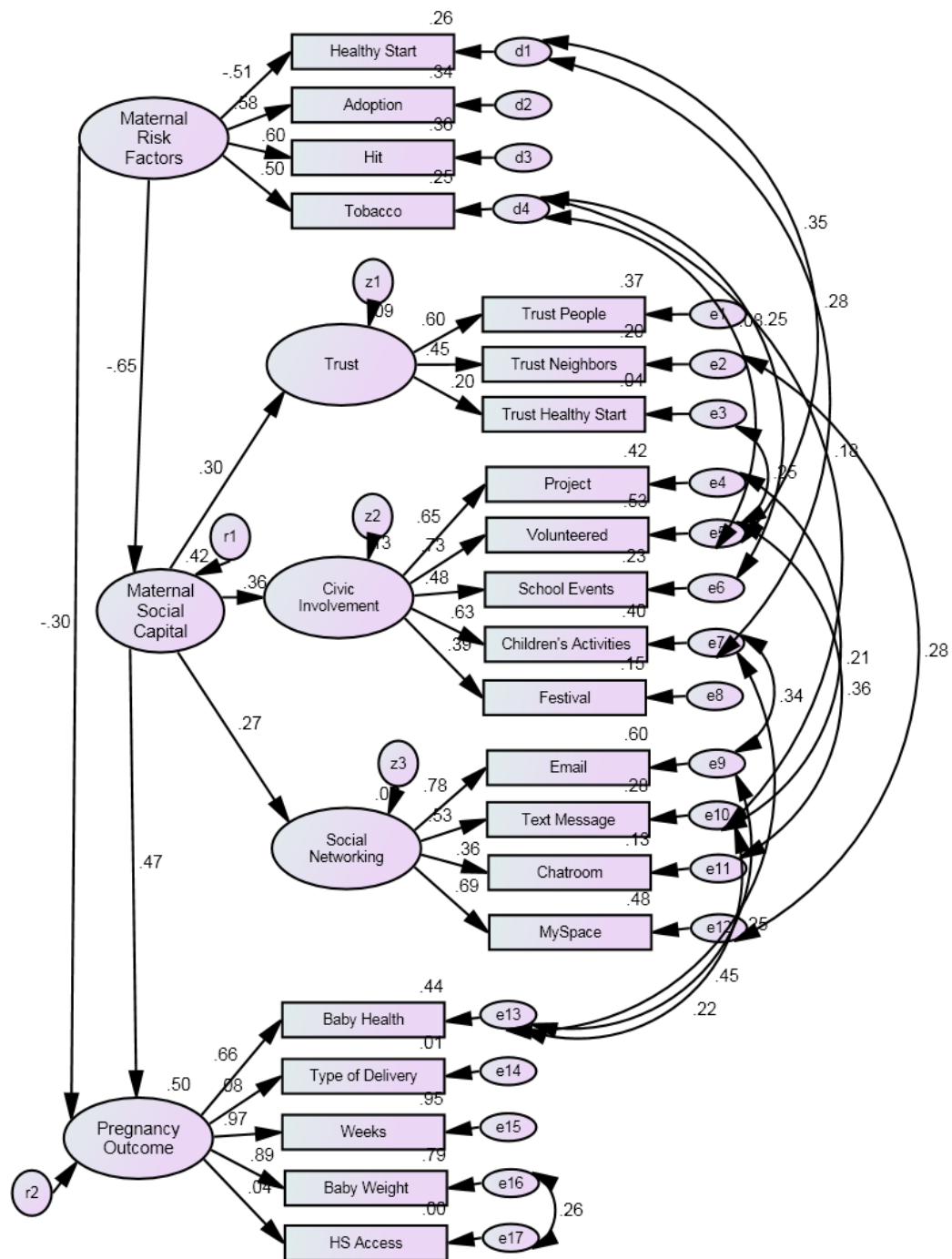


Figure 17: Revised Maternal Risk Factors, Maternal Social Capital and Pregnancy Outcome

Second Order Factor Analysis: Social Capital and Healthy Start Program Completion (Figure 18)

The model for maternal social capital and Healthy Start program completion produced the following goodness of fit statistics: CMIN = 119.149; DF = 63; CMIN/DF = 1.891; GFI = .860; AGFI = .798; NFI = .559; TLI = .638; CFI = .708; PRATIO = .808; RMSEA = .090; Hoelter (.05) = 77 and Hoelter (.01) = 85. In order to achieve a better model fit the error terms were correlated. No variables were removed from the model due the high factor loadings.

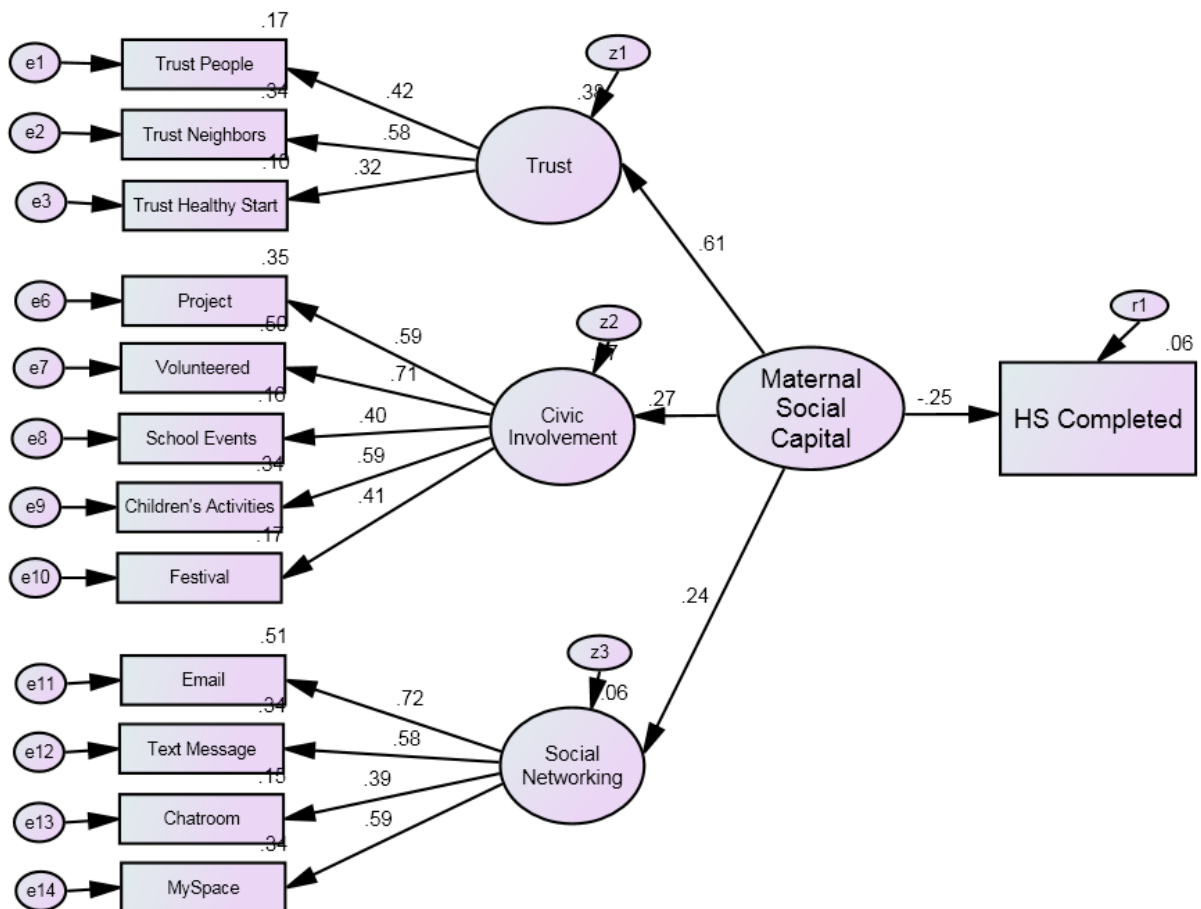


Figure 18: Maternal Social Capital and Healthy Start Program Completion

Revised Second Order Factor Analysis: Social Capital and Healthy Start Program Completion (Figure 19)

The revised model for maternal social capital and Healthy Start program completion produced the following goodness of fit statistics: CMIN = 72.090; DF = 56; CMIN/DF = 1.287; GFI = .916; AGFI = .864; NFI = .733; TLI = .883; CFI = .916; PRATIO = .718; RMSEA = .051; Hoelter (.05) = 114 and Hoelter (.01) = 128.

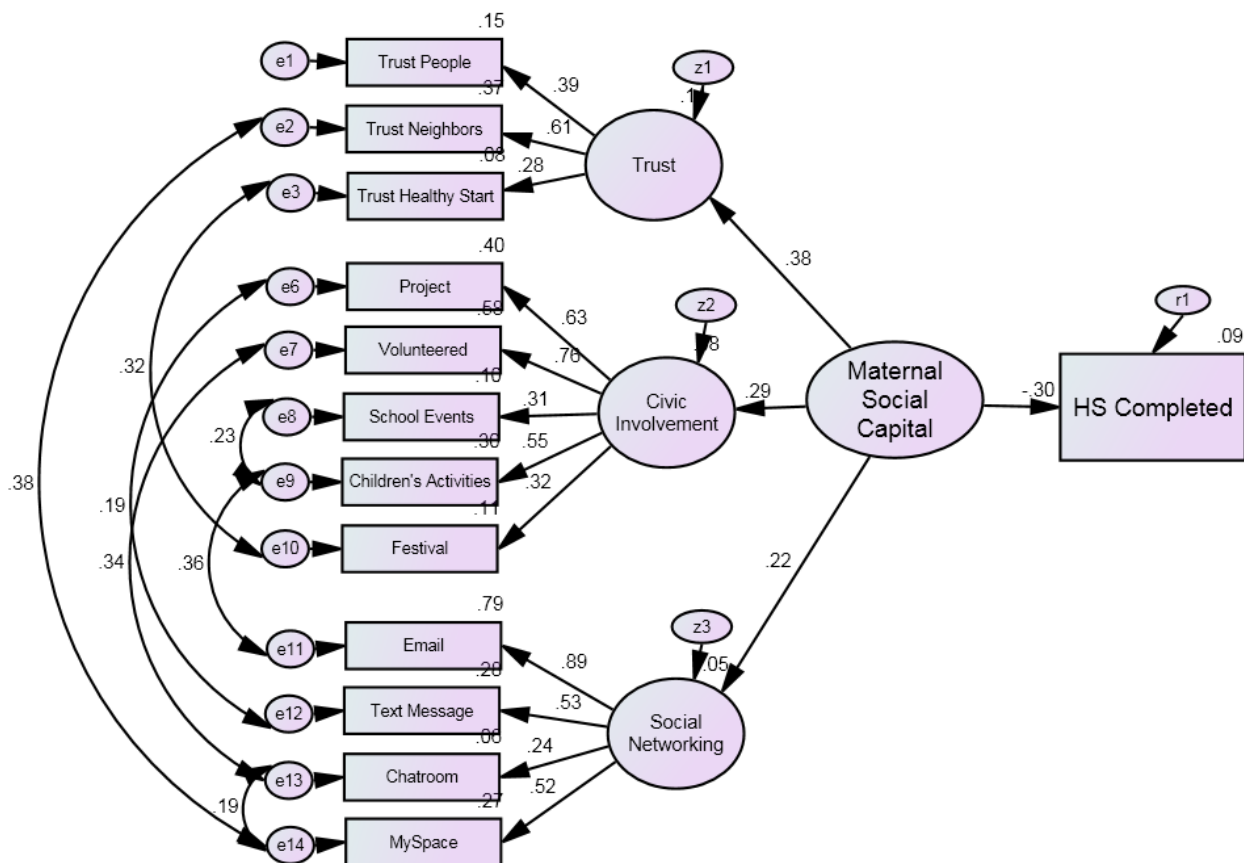


Figure 19: Revised Maternal Social Capital and Healthy Start Program Completion

CHAPTER FIVE: DISCUSSION, IMPLICATIONS, LIMITATIONS, AND CONCLUSIONS

Statement of Problem and Rationale for Study

The solution to negative pregnancy outcomes such as preterm delivery, low birth weight and infant mortality has long eluded social epidemiologists, public health officials, medical staff and social scientists. Research literature is abundant with theories, rationales, and studies analyzing the causes of negative pregnancy outcomes. However, despite all the research on the factors influencing pregnancy outcomes, no single explanation has been identified.

Though the United States has not kept pace with other nations in reducing preterm birth, low birth weight and infant mortality, reviewed as a trend line those rates had declined consistently over a thirty-year period. Within the last decade, however, the direction of the trend changed, rising sharply (El Reda, Grigorescu, Posner & Davis-Harrier, 2007; MacDorman, Martin, Mathews, Hoyert, and Ventura, 2005).

This rise is a red flag because poor birth outcomes such as preterm birth, low birth weight, and infant mortality have long been viewed as measures a nation's poor health and well-being. "It provides a quick measure of the quality of food and water, housing and clothing, health care, and education available in a population" (HRSA, 2006, p. 5; Reidpath & Allotey, 2003).

Furthermore, infants born with poor outcomes are at an increased risk not only for infant mortality and morbidity (Lee, Mitchell-Herzfeld, Lowenfels, Greene, Dorabawila & DuMont, 2009; McCormick, 1985; Petrini, Russell, Davidoff, Poschman, Green & Damus, 2004; Solomon & Liefeld, 1998), but for a host of other negative consequence: brain damage (Hack, Klein & Taylor, 1995); deafness (Bergman et al., 1985); blindness (Gallo & Lennerstrand, 1991); cerebral

palsy (Ellenberg & Nelson, 1979; Odding, Roebroek & Stam, 2006; O'Shea, 2008; Paneth, 1995); epilepsy (Sun, Vestergaard, Pedersen, Christensen, Basso & Olsen, 2008; Whitehead, Dodds, Joseph, Gordon, Wood, Allen, Camfield & Dooley, 2006); lung and/or liver disease (Hack et al., 1994; Kraybill, Bose, & D'Ercole, 1987; Paneth, 1995; Shiono & Behrman, 1995); cognitive developmental problems (Anderson et al., 1997; Hack, Klein & Taylor, 1995; Hack et al., 1994; Lee et al., 2009; Paneth, 1995); learning disabilities and attention deficit disorder (McCormick, Gortmaker & Sobel, 1990); higher rates of abuse and neglect (Gorham, 1997; Lee et al., 2009; Sidebotham & Heron, 2003); greater likelihood of placement in foster care (Gorham, 1997; Needell, & Barth, 1998); higher incidents of criminal activity and typically less financial success than their peers (Gorham, 1997; Grogger, 1997).

These societal indicators reveal the urgency of the crisis affecting the most vulnerable of our population. Therefore, it is imperative that researchers identify the most promising paths to reversing the rates of poor birth outcomes. This research study sought to discover whether there is a link between maternal level of social capital and pregnancy outcome. The foundation of this inquiry is that a casual link has been established between social capital and health status (Putnam, 2000; Wan & Lin, 2003), as well as a causal link between health status and pregnancy outcomes (Hueston & Kasik-Miller, 1998; Jesse & Alligood, 2002; McKee et al., 2001). A link also has been established between the individual components that Putnam (1995, 2000) uses to define social capital, and pregnancy outcomes. For example, trust (Kawachi et al., 1997), social networks (Balaji et al., 2007; Collins et al., 1993), and cultural norms (Savage, Anthony, Lee, Kappesser, & Rose, 2007), have all independently been linked to pregnancy outcomes. The references found that linked pregnancy outcomes and social capital directly were based on aggregated data (Kawachi et al., 1997; Moss, 2002; Putnam, 2000; Veenstra, 2002). Since

nothing in the literature has explored a relationship between individual, maternal level of social capital and the subsequent pregnancy outcome, this exploratory study investigated that question.

To investigate whether maternal social capital influences pregnancy outcomes, a survey was designed, using the peer review process, to study participants in the Healthy Start program in Orange County, Florida. The data collection was conducted over 13-months, August 2007 – September 2008, and produced a total of 112 returned survey forms, of which 92 contained pregnancy outcome information. The Healthy Start Care Coordinators administered the survey orally at two time points, to first collect demographic and social capital information, and later to collect pregnancy outcome data. To analyze the data, path analysis and structural equation modeling were used, with SPSS 12.0 and AMOS 18.0.

Discussion of Findings, Research Questions, and Hypotheses

Orange County Healthy Start Client Demographics

As an overview, this section describes a composite profile of the majority of the 112 women who participated in the Orange County Healthy Start survey, as follows: The profile describes a woman about 25 ½ years old, weighing 154 lbs and almost 5' 4" tall. At birth she was not of low birth weight. She is likely to be African American or Hispanic. She is more than likely to be unmarried and unemployed, but graduated from high school or earned a GED, and took the survey in English. This is not her first pregnancy but she has not participated in Healthy Start before. She doesn't know her household income. She reports good health and has relatively few extreme risk factors. Her health insurance is Medicaid. She keeps her prenatal appointments, hasn't moved a lot, feels safe at home, hasn't been exposed to someone hitting or hurting her and doesn't have a problem with hunger. In the last 2 months, she probably hasn't

smoked, used drugs or consumed alcohol. Her stress level is either low or medium and she probably hasn't had mental health counseling. She's relatively comfortable with the timing of her pregnancy and the father is probably involved, and is employed.

In three areas there are statistically significant differences between the women who left the program and those who completed it. Those areas are use of drugs or alcohol, high stress levels and feeling unsafe at home. Since use of drugs or alcohol increased the dropout rate by two and half times, additional care should be given to women who self-report drug or alcohol use.

There also is a statistically significant difference between the women who dropped the program and those who completed it in relation to self-reported stress levels: the women who later drop the program reported higher stress levels. Therefore women reporting high stress levels should be closely monitored. In addition there is a statistically significant difference (.262**) between the women who dropped the program and those who completed it, in feeling unsafe at home.

The Healthy Start client appears reluctant to trust people in general, and the women who dropped the program appear the most untrusting: not one of those women had said that people can be trusted. However, though the representative Healthy Start client does not trust her neighbors she probably trusts her Healthy Start Care Coordinator. She thinks she benefited from the program, learned a great deal about the maternal and child health resources available in Orange County and shared her learned information at least 2-4 times with other pregnant women. A startling statistic is that those women who later dropped the program had reported higher levels of amount learned.

Another interesting characteristic is that the Healthy Start client probably sends and receives daily email and text messages. However, of the women who dropped the program, 68% had reported using text messages daily, and 74% had reported texting daily and weekly. This finding suggests the Healthy Start program should be restructured to incorporate texting and emailing to clients. Healthy Start, a home-visitation program, entails high transportation and labor costs. In a constrained budget era, finding more efficient ways to deliver the same quality of service is valuable. Adding an entire component of social networking to the program's array of service delivery could serve clients well at less cost. Moreover, about 33% of those who completed the Healthy Start program are actively on MySpace-type websites.

Even though Healthy Start is decades old, key elements of the clients' behavior have not been taken into account, nor have the reasons clients have for leaving the program been previously analyzed. The study findings call attention to demographics and patterns of communication among the women who leave the program that should guide the program's practices. For example, if the Healthy Start clientele are using social networking in their personal communications, the program needs to incorporate those methods into program outreach.

One of the serendipitous findings is founded in access to Healthy Start services. While not statistically significant, the percentages suggest that clients who accessed Healthy Start services twice a month had better birth outcomes than those who accessed once a month or less, suggesting the value of the program. Thus supporting Healthy Start Care Coordinators are valuable and impacting the birth outcomes of the women and babies they serve.

Research Questions

RQ₁: What is the Relationship between Maternal Risk Factors and Maternal Social Capital?

The maternal demographics of race, education, marital status employment and income were reviewed in relation to a maternal social capital index that had been created from the data. While many of the demographic variables correlate with individual variables in the social capital index, only education and employment are statistically significant in relation to maternal social capital levels. Therefore, while not all the demographic characteristics have a direct effect on social capital, it appears that maternal education and employment status do.

Demographic characteristics such as race and education have been shown to be important predictors of interpersonal trust (Putnam, 2000). For example, higher levels of education are positively associated with interpersonal trust and Whites are considered more trusting than African-Americans (Putnam, 2000). The correlation data in this study support the Putnam (2000) findings. Education is statistically significant in relation to trusting neighbors and trusting Healthy Start coordinators. Though race is not statistically significant in relation to trust in these findings, when the data are reviewed they indicate that Hispanics are almost twice as likely as Blacks or Whites to have low social capital.

When the data were analyzed using the structural equation model, the maternal risk factors that emerged as most prominent were: use of tobacco, been hit or hurt, had considered adoption and whether the woman had previously participated in Healthy Start. The model was able to predict between 56% (generic model) and 65% (revised model) of the variance between maternal risk factors and maternal social capital, suggesting that maternal risk factors are

inversely related to maternal social capital. The strength of the factor loading supports that relationship.

RQ₂: What is the Relationship between Maternal Social Capital and Pregnancy Outcomes?

This research question produced mixed results: the correlation data do not show significance; the structural equation models however do. Since the findings are not consistent with each other, each should be interpreted cautiously.

The major purpose of this research project was to investigate whether maternal level of social capital has a direct effect on pregnancy outcome. When studied as correlations between individual variables or as a composite index variable, the relationship between maternal social capital and pregnancy outcome, do not show statistical significance. Previous researchers had concluded that social capital is a community-level variable and not an individual variable (Almedom, 2005; Lochner, Kawachi & Kennedy, 1999). Yet, given the powerful links established between all the aspects of social capital (trust/reciprocity, civic involvement and social networking) and individual health, the premise here was the possibility that the influence of social capital could be viewed at the individual level in relation to pregnancy outcome. Could maternal social capital be a missing link in the mystery of why United States social programs designed to improve birth outcomes have not reduced rates of low birth weight, prematurity and infant mortality to those in other industrialized countries?

The correlation findings do not support that underlying research premise. Since the original premise was not statistically supportable, the researcher embarked on a “fishing expedition.” Previous researchers had established social capital as a community level variable, so the researcher analyzed the data by zip code for any significance between social capital and

pregnancy outcome. Surprisingly, analyzing the data by zip code produced statistical significance.

To analyze the survey's social capital data by zip code, they were divided into two categories: low and high levels of social capital. Social capital index scores ranged from 16 to 61, with the highest possible score a 95. Those scores that were below the median, ranging from 16 to 37, were classified as low social capital. Those scores that were above the median, which ranged from 38-61, were classified as high social capital. The criterion for categorizing a zip code as low or high was on a straight majority. Zip codes with equal numbers of clients in the low and high social capital categories were excluded from the model. For example, for the 6 clients in zip code 32703, 4 clients had social capital index scores below the median and 2 were above the median. The majority of clients in that zip code scored below the median social capital index score, and the zip code was categorized as being of low social capital.

Kawachi, Kennedy, Lochner, & Prothrow-Smith (1997) found, similarly to Putnam (2000), that community-level social capital operating in concert with income inequality could predict 58% of the variance in total mortality and 42% of the variance in infant mortality.

As an index variable, social capital was not statistically significant in relation to pregnancy outcomes. However, when social capital was operationalized as a contextual variable, significance emerged. Viewing maternal social capital levels at the zip code level yielded significance among some of the pregnancy outcome variables. Lynch, Due, Muntaner and Davey Smith (2000) as well as Putnam (2000) suggests that social support at the community level is actually social capital. Healthy Start programs, which are a form of social support at the community level, could be classified as social capital.

Though the correlation data did not support this research question the structural equation model produced a different result. The structural equation model produced path coefficients that suggest maternal social capital can predict between 43% (generic model) up to 47% (revised model) of the variance of pregnancy outcome. This is a powerful finding since previously maternal social capital has not been taken into account as one of the factors influencing pregnancy outcomes. Typically research has focused on maternal risk factors, however, when mediated through maternal social capital, pregnancy outcomes can be predicted by up to 47% of the variance.

In addition, the path coefficients that emerged for maternal social capital include that the construct of trust can predict 30% of the variance, civic involvement can predict 36% of the variance and social networking can predict 27% of the variance. One implication is that the constructs of trust, civic involvement and even social networking are powerful predictive measures of maternal social capital as it relates to pregnancy outcome. Such aims as elevating women's levels of trust are not typically part of government-sponsored health programs, but given the strength of this path coefficient it might deserve attention.

Given the goodness of fit statistics from the structural equation model and the strength of the path coefficient, it appears that maternal social capital levels could explain as high as 47% of the variance in pregnancy outcome.

RQ₃: What is the Relationship between Maternal Risk Factors and Pregnancy Outcomes?

The maternal risk factors that were included in the survey were based on the Prenatal Risk Screen which is required by Florida Statute 383.14 to be given to all pregnant women at their first prenatal care visit. Risk factors with prominence in the literature were also included in

the survey: the mother's use of tobacco, alcohol and/or illicit drugs (Devaney et al., 2000; HRSA, 2006; Klerman et al., 2000; Phares et al., 2004; Ross et al., 2002; Tuthill et al., 1999); stress and lack of social support (Cassel, 1976; Cobb, 1976; Copper et al., 1996; Kramer et al., 2001; Lobel et al., 1992; Newton & Hunt, 1984; Nordentoft et al., 1996; Nuckolls et al., 1972; Orr et al., 1996); moving frequently or homelessness, being hit or hurt (Devaney et al., 2000; Savage et al., 2007); hunger, depression and ambivalent feelings toward pregnancy (Alsup, 1995; Boroff & O'Campo, 1996; McClintock, 1997).

For the study sample of 92 Healthy Start clients, the maternal risk factors that emerged as key indicators for pregnancy outcome were: tobacco use, being hit or hurt, considering adoption and no previous participation in Healthy Start. The structural equation model suggested that 45% (generic model) or 30% (revised model) of the variance in pregnancy outcome can be explained by those four variables. Therefore, according to the model, maternal risk factors have a significant negative effect on pregnancy outcome. The implication is that the Orange County, Florida Healthy Start population would benefit with additional emphasis on services for smoking cessation and domestic violence. Clients who are considering adoption for their infant probably do not welcome pregnancy and thus would benefit from a programmatic focus on family planning services.

Hypothesis Testing

H₁: Maternal Levels of Social Capital Surveyed during the Prenatal Period Will Be Low

Hypothesis one was tested by the social capital index scores of the survey respondents. The literature review, in particular the research of Birkel and Reppucci (1983) suggests that women who are likely to participate in "prevention-oriented human service programs" (p. 185)

generally have sparse social networks. An individual who has sparse social networks is likely to have a low level of social capital (Putnum, 2000). Taken in concert, those studies were the premise for the expectation in this study was that women who entered the Healthy Start program would have sparse social networks and low levels of social capital. The data appear to support this hypothesis, since social capital index scores ranged from 16 to 61, out of a possible score of 95. When reviewed as a distribution, the data from the Healthy Start program are skewed to the left on the graph. These data reveal that for the study sample, women participating in the Healthy Start program, their social capital levels are at the lower end of the scale, which supports hypothesis one.

H₂: There is an Inverse Relationship between Maternal Level of Social Capital and Healthy Start Program Completion

When evaluating the relationship between maternal social capital and Healthy Start program completion, the anticipated outcome was that those with higher social capital index scores would drop out because they require fewer externally based networks and supports. Results for some of the social capital variables supported hypothesis two. For example, women that later left the program were 3 times as likely to report having volunteered once during the past year than those who completed it. Since the extent someone volunteers has been shown to be a predictor of social capital, this finding suggests that women who left the program have greater social capital than do those who completed it.

Another of the social capital variables that supports hypothesis two is the level of attendance at religious services. About 58% of women who later left the program attended weekly religious services as compared to 37% of those who completed the program. This is one

more indication that a high percentage of the women who left the program had support networks beyond the Healthy Start program.

Another indication to support hypothesis two, is based on the maternal social capital index score. A total of 19 women left the program; 8 of those women had low social capital index scores but 11 had social capital index scores higher than the median. In addition, the mean maternal social capital index score was higher for those that dropped the program (38.364) as compared to those who completed it (37.1739). Thus, this finding supports previous research which stated that people with fewer social networks and less social support were more likely to participate and complete a home-visitation social service program (Birkel & Reppucci, 1983).

The final way hypothesis two was analyzed was by a measurement model of maternal social capital and Healthy Start program completion (Figure 18 – Figure 19). The measurement model showed that maternal social capital could inversely predict up to 30% of the variance between maternal social capital and Healthy Start program completion. This finding supports hypothesis two; however, given the small sample size (19) of those that dropped the program these findings should be viewed cautiously.

Study Limitations

While useful for theory testing path analysis and structural equation modeling are not without limitations. The fact that a model produces significance does not necessarily mean that it accurately reflects the phenomena in the population. Kline (2005) states that “one assumption of path analysis is that exogenous variables are measured without error... [T]he general consequence of error-prone measures... is that the statistical estimates of presumed causal effects may be inaccurate” (p. 96).

While the models produced goodness-of-fit-statistics within acceptable ranges the analysis is based on a relatively small sample size (N=111 or N=92). The stability of the model fit could not be adequately demonstrated with a small sample size. Furthermore, the overall study sample is a non-random or purposive sample from all pregnant women in a geographic area that selected pregnant women affiliated with a county Healthy Start program. Since all women in the Healthy Start program are deemed at risk for poor pregnancy outcomes, the findings are based on a homogeneous population of women. A study replicated with pregnant women with less homogeneous demographics would have more support for generalizability. For the design of this study generalizability may go no further than the Healthy Start program in another county in Florida. However, even with the limitations, it is the first step to finding a cause for pregnancy outcomes that is beyond what is currently in the literature. The following section summarizes the implications of the study's findings.

Theoretical Implications

This research was founded on the literature's logical flow that social capital has previously been shown to influence health outcomes of all sorts. In particular, previous research has components of social capital such as trust and quantity and quality of interpersonal networks that affect health outcomes that include pregnancy outcomes. The basis of this research was to try to connect the remaining research "dots." The results suggest that social capital when measured as an individual characteristic has some effect on these pregnancy outcomes: Healthy Start access, birth weight, gestational weeks, type of delivery and baby health at 28 days.

Previous research has shown a link between community-level social capital and infant health measures such as infant mortality (Kawachi et al., 1997). However research is lacking on

individual-level social capital as asset that may affect pregnancy outcomes. This research suggests that as much as 47% of the variance of a pregnancy outcome may be explained by maternal social capital. Given that social capital theory and construct are typically viewed as a contextual variable, the implication of this research is that social capital is also an individual-level asset. The implication for the theory is to provide a starting point from which other researchers can proceed to recreate this finding. A second implication is that maternal level of social capital is a concept with potential for casting light on the Perinatal Paradox, the failure of the United States to bring rates of adverse pregnancy outcomes to the level of other industrialized countries despite the nation's high expenditures and advanced technology. If maternal level of social capital does influence pregnancy and infant health outcomes, then the theory provides a predictor map for examining cause and effect in the hope of addressing the cause to for a more positive effect.

Social Policy Implications

As elected officials fund health service programs, they look at the bottom line: how much money is being spent, and what is the outcome? Cost-effectiveness models are endemic to government programs. Even when human lives and health are at stake, costs are not ignored. Thus when elected officials fund programs to improve infant health by reducing rates of low birth weight, preterm delivery and infant mortality, yet those rates do not significantly improve, the programs must be reviewed. The results of this study suggest that programs to increase women's individual social capital level may influence birth outcomes. Though an area not usually part of government-sponsored health programs, the strength of the path analysis in this

study suggests it is an area to consider. The next policy step could be to sponsor a pilot program to improve maternal social capital and monitor its participants' pregnancy outcomes.

Implications for Future Research and Lessons Learned

At the conclusion of a project it is useful to evaluate what could have been done differently and the lessons drawn from the project. The following steps should be considered if this project is recreated.

- 1) Track via GIS and obtain street addresses as well as, in the current study residential zip codes.
- 2) Ask about maternal weight post-birth, for comparison to pre-pregnancy weight in order to determine the weight gain during the pregnancy.
- 3) Ask for more maternal health information: last dental visit and presence of bacterial vaginosis, as well as these risk factors included on the infant's birth record: anemia, cardiac disease, acute/chronic lung disease, diabetes, genital herpes, (oligo) hydramnios, hemoglobinopathy, chronic hypertension, hypertension during pregnancy, eclampsia, incompetent cervix, previous birth weighing 4,000 or more grams, previous preterm or small birth, renal disease, rh sensitization, uterine bleeding, and other medical risk factors.
- 4) Use the new Healthy Start Prenatal Risk Screen, which began use in 2008 after this study had already started, and ask questions listed in the provider questions section.
- 5) Ask what trimester the woman entered prenatal care (week of pregnancy if available).
- 6) Ask for more information about previous pregnancies: type, whether carried full-term and any complications.

- 7) Adopt the Social Capital Benchmark survey questions that ask about group memberships and voter participation to align more closely with Putnam (2000).
- 8) Ask infant's gender and plurality status (singleton or twin).
- 9) Ask for income in ranges rather than actual amounts.
- 10) Ask whether the mother is enrolled and receiving Women, Infants, and Children (WIC) services pre-, during and post-pregnancy.
- 11) Participation in the Healthy Start program increases levels of maternal social capital by providing access to networks and resources that help ensure for a healthy pregnancy. Access to Healthy Start services appears to have an inverse relationship with every birth outcome variable. Conduct a random controlled sample and increase the contacts of each client to at least 3 times per month, once in person and at least twice by text message, to investigate whether increased access to services positively affects birth outcomes.
- 12) Study another Healthy Start Coalition area, increasing the person-to-person contact to no less than twice per month, to investigate whether the type of Healthy Start access affects birth outcomes.
- 13) Design a research study to follow the women who drop out of the Healthy Start program. The findings of this study indicate that their demographics were different, such as having higher levels of maternal social capital and more use of text messaging and emailing. There is a dearth of knowledge about what motivates women to drop the program and what mechanisms might be incorporated in order to retain them. Moreover, the pregnancy outcomes of the women who leave the Healthy Start program are a complete mystery. It appears that those women have a higher level of networking based on friends coming to their home and attending weekly religious services, but how that affects the

pregnancy outcomes is not known. This study offered a glimpse at how maternal levels of social capital may pregnancy outcomes, birth weight in particular, as analyzed in a structural equation model.

Conclusion

The primary purpose of this research was to inquire whether a link exists between maternal level of social capital and pregnancy outcome. Although findings in the literature indicate that the community where women live affects their aggregate infant mortality rate, no direct link has been studied between a pregnant woman's social capital level and her subsequent pregnancy outcome. This research set out to test that possibility.

The study showed that four maternal risk factors: tobacco use, whether a woman had been hit or hurt, considered adoption and had no previous participation with Healthy Start can negatively influence up to 65% of the variance of the woman's maternal social capital. Maternal social capital was shown to predict up to 47% of the variance of pregnancy outcome comprising access to Healthy Start services, birth weight, gestational age, type of delivery and baby health. Considering that there hitherto has been no research on a link between maternal social capital and pregnancy outcome, this is a powerful finding. In addition, maternal risk factors inversely affect pregnancy outcome and it has been shown that 30% of the variance in pregnancy outcomes can be explained by maternal risk factors. Previous research has thus focused on maternal risk factors as the primary reason for high rates of low birth weight, preterm delivery and infant mortality. However, when a more in-depth, model is developed, it is telling that certain maternal risk factors have a strong influence on maternal social capital (65% of the variance) but only a 30% of the variance on pregnancy outcomes by themselves. That suggests

that one missing link to stubbornly high United States rates of adverse pregnancy outcomes may relate to levels of maternal social capital.

When public health researchers, health officials and policy makers have more understanding of the causes of the high rates of low birth weight, preterm delivery and infant mortality, they can collectively address the etiology. With concerted effort made by the maternal and child health field, perhaps we disentangle the mystery of the Perinatal Paradox.

APPENDIX A: UCF OUTCOME LETTER



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Notice of Exempt Review Status

From: UCF Institutional Review Board
FWA00000351, Exp. 5/13/07, IRB00001138

To: Jennifer James-Mesloh,

Date: June 01, 2007

IRB Number: SBE-07-05010

Study Title: Social Capital and Pregnancy Outcomes

Dear Researcher:

Your research protocol was reviewed by the IRB Chair on June 1, 2007. Per federal regulations, 45 CFR 46.101, your study has been determined to be minimal risk for human subjects and **exempt** from further IRB review or renewal unless you later wish to add the use of identifiers or change the protocol procedures in a way that might increase risk to participants. Before making any changes to your study, submit the Addendum/Modification Request Form for IRB approval.

The category for which exempt status has been determined for this protocol is as follows:

#4 – Research involving the collection or study of existing data, documents, records, pathological specimens or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. (“Existing” means already collected and/or stored before your study starts, not that collection will occur as part of the routine care.)

All data must be retained for a minimum of three years past the completion of this research. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel. Advise the IRB if you receive a subpoena for the release of this information or if a breach of confidentiality occurs. Also, report any unanticipated problems or serious adverse events (within 5 working days).

Sincerely,

Signature applied by Joanne Muratori on 06/01/2007 10:05:11 AM EDT

A handwritten signature in cursive script that reads 'Joanne Muratori'.

APPENDIX B: IRB APPROVAL LETTER



Charlie Crist
Governor

Ana M. Viamonte Ros, M.D., M.P.H.
State Surgeon General

NOTIFICATION OF INSTITUTIONAL REVIEW BOARD APPROVAL

July 24, 2007

To: Jennifer James-Mesloh

Protocol Title: Pregnancy Outcomes Within The Orange County Healthy Start Program

DOH IRB Number: H07160

Submission Type: Protocol H07160

Review Type: Expedited Review

Approval Date: July 24, 2007

Expiration Date: July 23, 2008

The Department of Health Institutional Review Board, or representative, determined your study involves no more than minimal risk and meets the criteria for expedited review. It has been granted **expedited approval**. The study is approved for implementation.

As a reminder, the IRB must review and approve all human subjects research protocols at intervals appropriate to the degree of risk, but not less than once per year. **You are responsible for applying for renewal of this project at least 60 days prior to the expiration date of July 23, 2008.** This approval is valid for no more than one year. Re-approval is contingent upon IRB review and approval of a Continuing Review Report prior to the anniversary or expiration date of this approval.

Approval is contingent upon continued ethical research practice and your agreement to obtain informed consent and authorization from your subjects, unless waived. Please make certain that confidentiality is maintained. You must abide by the policies and procedures of the Florida Department of Health with regard to the use of human subjects in research, and keep appropriate records concerning your subjects.

Investigators are required to notify the IRB in writing as soon as possible, but within 10 working days, of the occurrence of any adverse events, unanticipated problems, injuries, side effects, deaths, other problems involving risks to subjects, or deviations from federal or state regulations, or DOH policy.

The IRB has approved exactly what was submitted. Any revisions to this protocol or consent form, no matter how minor, must be presented to the IRB for review and approval before implementation of the changes, except where necessary to eliminate hazard to human subjects. If a change is required to eliminate an immediate hazard, the IRB should be notified as soon as possible but no later than 10 working days.

Researchers are required to notify this IRB, in writing, in the event that this study is not implemented or when termination of this study takes place.

Office of the State Surgeon General
4052 Bald Cypress Way, Bin A00 • Tallahassee, FL 32399-1701



Charlie Crist
Governor

Ana M. Viamonte Ros, M.D., M.P.H.
State Surgeon General

Research records must be maintained for three years after completion of the research; if the study involves medical treatment, it is recommended that records be maintained for eight years.

Please note that this protocol has been assigned the above-referenced DOH IRB protocol number. All inquiries and correspondence concerning this protocol must include (1) the above-referenced IRB number; (2) name of the principal investigator; and, (3) full title of study.

If you have any questions, or if we can be of any assistance, please contact the Department of Health IRB at (850) 245-4585 or toll-free in Florida (866)-433-2775. You may also visit our website at: <http://www.doh.state.fl.us/execstaff/irb/>

Thank you for your cooperation with the IRB.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Hood", followed by a vertical red line.

Robert Hood, Ph.D.

Ethics and Human Research Protection Program

Assistant Director, Office of Public Health Research

Federal Wide Assurance#: 00004682

APPENDIX C: IRB CONTINUING REVIEW APPROVAL LETTER



Charlie Crist
Governor

Ana M. Viamonte Ros, M.D., M.P.H.
State Surgeon General

NOTIFICATION OF INSTITUTIONAL REVIEW BOARD APPROVAL

August 3, 2009

To: Jennifer Ann James-Mesloh

Protocol Title: Pregnancy Outcomes Within The Orange County Healthy Start Program
DOH IRB Number: H07160

Funding Agency:

Submission Type: Continuing Review #2 for H07160

Review Type: Expedited Review

Approval Date: August 2, 2009

Expiration Date: August 1, 2010

The Department of Health Institutional Review Board, or representative, determined your Application for Continuing Review meets the criteria for expedited review. It has been granted expedited approval. The study is re-approved for implementation.

As a reminder, the IRB must review and approve all human subjects research protocols at intervals appropriate to the degree of risk, but not less than once per year. You are responsible for applying for renewal of this project at least 60 days prior to the expiration date of August 1, 2010. Action is required even if your study is closing. Failure to complete an application for continuing review at least 60 days in advance of expiration is considered non-compliance by the Department of Health, and may result in closure of the study, reporting to institutional officials, and reporting to federal regulatory authorities, and suspension of funding, if funded by DOH.

Under federal regulations, if the IRB does not approve an application to continue research prior to expiration, then authorization to continue research expires automatically and all research must stop. Federal regulations do not allow any "grace" period or allow research to continue once authorization expires (except in limited circumstances).

Investigators are required to notify the IRB in writing as soon as possible, but within 10 working days, of the occurrence of any adverse events, unanticipated problems, injuries, side effects, deaths, other problems involving risks to subjects, or deviations from federal or state regulations, or DOH policy.

The IRB has approved exactly what was submitted. Any revisions to this protocol or consent form, no matter how minor, must be presented to the IRB for review and approval before implementation of the changes, except where necessary to eliminate hazard to human subjects. If a change is required to eliminate an immediate hazard, the IRB should be notified as soon as possible but no later than 10

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Charlie Crist
Governor

Ana M. Viamonte Ros, M.D., M.P.H.
State Surgeon General

working days.

Research records must be maintained for three years after completion of the research; if the study involves medical treatment, it is recommended that records be maintained for eight years.

If you have any questions, or if we can be of any assistance, please contact the Department of Health IRB at (850) 245-4585 or toll-free in Florida (866)-433-2775.

You may also visit our website at: <http://flpublichealthethics.net/>

Thank you for your cooperation with the IRB.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Hood", followed by a vertical red line.

Robert Hood, Ph.D.
Ethics and Human Research Protection Program
Assistant Director, Office of Public Health Research

Federal Wide Assurance#: 00004682



APPENDIX D: UCF-IRB COURSE CERTIFICATE

CITI Course in The Protection of Human Research Subjects

[Print This Report](#)

Monday, September 4, 2006

CITI Course Completion Record # 325381 for Jennifer James-Mesloh

To whom it may concern:

On 9/4/2006, *Jennifer James-Mesloh* (username=jjmesloh) completed all *CITI Program* requirements for the *Basic CITI Course in The Protection of Human Research Subjects*.

Learner Institution: *University of Central Florida*

Learner Group: *Group 1.*

Learner Group Description: *Biomedical Research Investigators and Key Personnel*

Contact Information:

Gender: Female

Department: PhD Program in Public Affairs

Which course do you plan to take?: Social & Behavioral Investigator Course Only

Role in human subjects research: Student Researcher

Mailing Address:

20562 Cypress Knee Court

Estero

FL

33928

USA

Email: jjmesloh@yahoo.com

Office Phone: 239-985-3574

Home Phone: 239-949-0738

	Date completed
The Required Modules for <i>Group 1.</i> are:	
Introduction	08/08/06
History and Ethical Principles	08/08/06

Basic Institutional Review Board (IRB) Regulations and Review Process	08/11/06
Informed Consent	08/11/06
Social and Behavioral Research for Biomedical Researchers	08/11/06
Records-Based Research	08/11/06
Genetic Research in Human Populations	08/11/06
Research With Protected Populations - Vulnerable Subjects: An Overview	09/04/06
Vulnerable Subjects - Research with Prisoners	09/04/06
Vulnerable Subjects - Research Involving Minors	09/04/06
Vulnerable Subjects - Research Involving Pregnant Women and Fetuses in Utero	09/04/06
Group Harms: Research With Culturally or Medically Vulnerable Groups	09/04/06
FDA-Regulated Research	09/04/06
HIPAA and Human Subjects Research	09/04/06
Conflicts of Interest in Research Involving Human Subjects	09/04/06
UCF	09/04/06

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiler Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

CR# 325381

CITI Course in The Protection of Human Research Subjects

[Main Menu](#) | [Grade Book](#) | [General Information](#) | [FAQ](#) | [Logoff](#)

Congratulations Jennifer James-Mesloh you have now successfully completed all of the requirements for Group 1, as defined by University of Central Florida. You may now print a completion certificate indicating your accomplishment. In addition, all modules and quizzes are now accessible if you wish to do more than your institution's minimum requirement.

[View completion report](#)

Active status in the current group is set for 3 years and this status will expire on 09/04/09. Until that time, you can continue to take both required and optional modules. Additional optional modules may be taken and will be listed on the Completion Report, but quiz scores for these optional modules will not contribute to the "passing score" set by your institution. After 09/04/09, this completion report will expire, the grade book will be reset and the completion report archived.

[Click here](#) for information on CME/CEU credits.

If you wish to close out the current grade book and start a new one before the expiration date, [CLICK HERE TO RESET GRADE BOOK](#). The current grade book completion report will be archived according to Learner Group and completion date. You will be able to retrieve the completion report at any time in the future as evidence of course completion.

The modules that you have completed are indicated with a score and a completion date. Required modules, yet to be completed, are indicated under the "Required Modules" heading as "incomplete". Complete the required modules in order. The optional modules will become available when all required modules are completed. If you want to improve a quiz score, you may review the module as often as needed and retake any or all quizzes. Your highest quiz score will be saved by the software.

To be able to print a course completion report you must:

Complete all the required modules.
 Correctly answer 75% of the quiz questions for required modules
 (Scores for the optional module quizzes will not "count"
 toward the 75% score requirement.)

Basic CITI Course

Required Modules	Date	Your Score	Total Possible Points
<u>Introduction</u>	08/08/06	no quiz *	
<u>History and Ethical Principles</u>	08/08/06	5 *	5
<u>Basic Institutional Review Board (IRB) Regulations and Review Process</u>	08/11/06	5 *	5
<u>Informed Consent</u>	08/11/06	4 *	4
<u>Social and Behavioral Research for Biomedical Researchers</u>	08/11/06	4 *	4
<u>Records-Based Research</u>	08/11/06	2 *	2
<u>Genetic Research in Human Populations</u>	08/11/06	2 *	2
<u>Research With Protected Populations - Vulnerable Subjects: An Overview</u>	09/04/06	4 *	4
<u>Vulnerable Subjects - Research with Prisoners</u>	09/04/06	4 *	4
<u>Vulnerable Subjects - Research Involving Minors</u>	09/04/06	3 *	3
<u>Vulnerable Subjects - Research Involving Pregnant Women and Fetuses in Utero</u>	09/04/06	3 *	3
<u>Group Harms: Research With Culturally or Medically Vulnerable Groups</u>	09/04/06	3 *	3
<u>FDA-Regulated Research</u>	09/04/06	3 *	3

HIPAA and Human Subjects Research	09/04/06	2 *	2
Conflicts of Interest in Research Involving Human Subjects	09/04/06	2 *	2
UCF	09/04/06	no quiz *	
Optional Modules	Date	Your Score	Total Possible Points
Human Subjects Research at the VA	Incomplete		
Workers as Research Subjects-A Vulnerable Population	Incomplete		
Hot Topics	Incomplete		
Percent correct for required modules:		100%	

Current completion report

Apply for 6 CME Credits. A minimum of 12 modules must be completed to obtain 6 CME /CEU credits. CME credits are only available for completion of the Human Subjects Course.

* Module included on completion report.

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APPENDIX E: CITI REFRESHER COURSE

CITI Collaborative Institutional Training Initiative

Human Research Curriculum Completion Report Printed on

Learner: Jennifer James-Mesloh (username: jjmesloh)
Institution: University of Central Florida
Contact Information 20562 Cypress Knee Court
Estero, FL 33928 USA
Department: PhD Program in Public Affairs
Phone: 239-985-3574
Email: jjmesloh@yahoo.com

Group 2.:

Stage . Refresher 2 Course Passed on 07/26/09 (Ref # 1119167)

Required Modules	Date Completed	Score
Refresher Course 101 Introduction	07/05/07	no quiz
SBR 101 REFRESHER MODULE 1. History and Ethics	07/26/09	5/5 (100%)
SBR 101 REFRESHER MODULE 2. Regulatory Overview	07/26/09	5/5 (100%)
SBR 101 REFRESHER MODULE 3. Fundamental Issues.	07/26/09	5/5 (100%)
SBR 101 REFRESHER MODULE 4. Vulnerable Subjects	07/26/09	4/4 (100%)
SBR 101 REFRESHER MODULE 5. Additional Topics	07/26/09	5/5 (100%)
How to Complete The CITI Refresher Course and Receive the Completion Report	07/26/09	no quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiler Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

[Return](#)

APPENDIX F: CREOLE CERTIFICATE OF ACCURACY

CERTIFICATE OF ACCURACY

State of: **Florida**
City of: **Melbourne**
County of: **Brevard**

Alpha Translation Svcs, Inc. hereby certifies that the following, to the best of our knowledge and belief, is a true and accurate translation from English into Creole.

Consent Letter, 2007 Social Capital & Pregnancy Outcomes.

Jennifer Bixby.

Signature
Title: Office Manager
Company name: Alpha Translation Svcs, Inc.

Sworn to and subscribed before me this 26 day of April, 2007, by Lesly Bazelaïs

Lesly Bazelaïs

Notary Public



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**APPENDIX G: HEALTHY START PROGRAM EVALUATION,
TRAINING AND PROCEDURES MANUAL**

HEALTHY START PROGRAM EVALUATION TRAINING & PROCEDURES MANUAL





MODULE 1: INFORMED CONSENT



**MODULE 2:
RESEARCH WITH
PROTECTED POPULATIONS:
VULNERABLE SUBJECTS**



HEALTHY START

MODULE 3:
VULNERABLE SUBJECTS:
RESEARCH INVOLVING PREGNANT
WOMEN & FETUSES IN UTERO



HEALTHY START

**MODULE 4:
GROUP HARMS:
RESEARCH WITH CULTURALLY
OR MEDICALLY VULNERABLE GROUPS**



PROCEDURES

APPENDIX H: CONSENT LETTERS – ENGLISH

Note to Interviewer: First Consent Letter: Please read to all survey participants prior to beginning the survey.

INTERVIEWER:

Hi, (Name of person). Healthy Start is working with a doctoral student from the University of Central Florida in Orlando, Florida. Her name is Jennifer James-Mesloh. She is conducting research required for completion of her degree titled: Social Capital and Pregnancy Outcomes. The purpose of the research is to learn how social capital impacts the pregnancy.

INTERVIEWER:

You must be 18 years of age or older to participate in this research project. Are you at least 18? (If yes, continue; if no, discontinue).

INTERVIEWER:

If you have any questions about this research project, please contact Jennifer James-Mesloh at (239) 949-0738. Her faculty supervisor, Dr. Thomas T.H. Wan, may be contacted at (407) 823-3678 or by email at twan@mail.ucf.edu with any questions.

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). This research study has been reviewed and approved by the UCF IRB. Questions or concerns about research participants' rights may be directed to the Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The telephone number is (407) 823-2901.

INTERVIEWER:

You will be asked to answer survey questions at two (2) different time periods. This time period is before your baby is born and the second time period will be about 30 days after your baby is born.

The survey will consist of 3 parts, the first part will ask very similar questions that appeared on the Prenatal Risk Screen you took at your doctor's office. These are the questions that originally referred you to the Healthy Start program.

The second part of the survey will ask questions about your level of social capital. Social

capital is a term used to discuss your relationships with friends, neighbors, family, community, and government.

The third part of the survey won't be done today, it will be done after your baby is born and you will be asked questions about how your baby is doing after the delivery.

Today the survey will take about 20 minutes and the second time it will take about 5 minutes.

INTERVIEWER:

(Add as necessary to assure respondent) Your participation in this survey is completely voluntary and confidential. Do you have any questions you want to ask about the survey?

You were chosen to participate in this survey because you are receiving Healthy Start services. You will not be identified by name in any document that is produced.

Over the next few months Healthy Start Care Coordinators will be interviewing Healthy Start clients in Florida and your answers will be combined with everyone else's. You have the right to decline participation in the survey and you will still receive your Healthy Start services. You have the right to refuse to answer any question you want. You may also terminate the interview at any time.

There are no anticipated risks, compensation or other direct benefits to you as a participant in this interview. You are free to withdraw your consent to participate and may discontinue your participation in the research project at any time without consequence.

Your participation or non-participation in this study has no impact on your participation in the Healthy Start program. Declining to participate in this study or withdrawing from this study does NOT mean that you have to drop out of the Healthy Start program.

If you agree to participate the survey will be done here in your home. I will read the survey questions to you and you can tell me your answers, which I will mark in the survey booklet.

INTERVIEWER:

Let me stress that your participation in this survey is completely voluntary and confidential. Only myself, your Healthy Start Care Coordinator, will know your identity. All surveys are number coded and the researcher will not have access to your name or identity.

Results of the study will be added together with the other participants and no individual answers will be published in the final manuscript. Your identity will be kept confidential and will not be revealed in the final manuscript.

INTERVIEWER: start with the questions approved by IRB.

Note to Interviewer: Second Consent Letter: Please read to all survey participants prior to beginning the survey.

INTERVIEWER:

Hi, (Name of person). Healthy Start is working with a doctoral student from the University of Central Florida in Orlando, Florida. Her name is Jennifer James-Mesloh and she is conducting research required for completion of her coursework titled: Social Capital and Pregnancy Outcomes. The purpose of the research is to learn how social capital impacts the pregnancy.

INTERVIEWER:

You must be 18 years of age or older to participate in this research project. Are you at least 18? (If yes, continue; if no, discontinue).

INTERVIEWER:

If you have any questions about this research project, please contact Jennifer James-Mesloh at (239) 949-0738. Her faculty supervisor, Dr. Thomas T.H. Wan, may be contacted at (407) 823-3678 or by email at twan@mail.ucf.edu with any questions.

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INTERVIEWER:

You will be asked to answer questions to complete the third part of the survey you took before. This second time period is about 30 days after your baby is born and you will be asked questions about how your baby is doing after the delivery.

Today the survey will take about 5 minutes.

INTERVIEWER:

(Add as necessary to assure respondent) Your participation in this survey is completely voluntary and confidential. Do you have any questions you want to ask about the survey?

You were chosen to participate in this survey because you are receiving Healthy Start services. You will not be identified by name in any document that is produced.

Over the next few months Healthy Start Care Coordinators will be interviewing Healthy Start clients and your answers will be combined with everyone else's. You have the right to decline participation in the survey and you will still receive your Healthy Start services. You have the right to refuse to answer any question you want. You may also terminate the interview at any time.

There are no anticipated risks, compensation or other direct benefits to you as a participant in this interview. You are free to withdraw your consent to participate and may discontinue your participation in the research project at any time without consequence.

Your participation or non-participation in this study has no impact on your participation in the Healthy Start program. Declining to participate in this study or withdrawing from this study does NOT mean you have to drop out of the Healthy Start program.

If you agree to participate, the survey will be done here in your home. I will read the survey questions to you and you can tell me your answers, which I will mark in the survey booklet.

INTERVIEWER:

Let me stress that your participation in this survey is completely voluntary and confidential. Only myself, your Healthy Start Care Coordinator, will know your identity. All surveys are number coded and the researcher will not have access to your name or identity. Results of the study will be added together with the other participants and no individual answers will be published in the final manuscript. Your identity will be kept confidential and will not be revealed in the final manuscript.

INTERVIEWER: start with the questions approved by IRB.

APPENDIX I: CONSENT LETTERS — SPANISH

Nota para el/a entrevistador/a: Primera carta de consentimiento: Por favor lea a todas las participantes antes de comenzar la encuesta.

ENTREVISTADOR/A:

Hola, (nombre de la persona). *Healthy Start* está colaborando con una estudiante de doctorado de la Universidad Central de Florida en Orlando. Se llama Jennifer James-Mesloh. Esta estudiante está realizando una encuesta como parte de su investigación que lleva por título: *Capital social y resultados en el embarazo*. El propósito de esta investigación es aprender sobre el impacto en el embarazo del capital social y la salud de la madre.

ENTREVISTADOR/A:

Usted debe tener años 18 o más para poder participar en este proyecto. ¿Tiene usted como mínimo 18 años? (si es así, continúe, si no, no lo haga).

ENTREVISTADOR/A:

Si tiene preguntas sobre esta investigación, por favor contacte con Jennifer James-Mesloh en el número de teléfono (239) 949-0738. En caso de cualquier duda o pregunta, puede ponerse en contacto con su el supervisor, el profesor Thomas T.H. Wan en el número de teléfono (407) 823-3678 o por correo twan@mail.ucf.edu.

Cualquier investigación en la Universidad Central de la Florida que involucre a personas se realiza bajo la supervisión del Consejo Institucional de Revisión (en inglés conocido por las siglas IRB). Este estudio ha sido revisado y aprobado por el IRB de la Universidad Central de Florida (UCF). Cualquier duda o pregunta sobre los derechos de los participantes en la investigación pueden ir dirigidas a la Oficina del Consejo Institucional de Revisión, el Coordinado del IRB, la Universidad Central de la Florida, la Oficina de Investigación y Comercialización, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. Número de teléfono: (407) 823-2901.

ENTREVISTADOR/A:

Se le pedirá que responda a un cuestionario en dos (2) ocasiones. La primera será antes de que nazca su bebé y la segunda será unos 30 días después de que nazca su bebé.

El cuestionario consistirá de 3 partes; la primera parte consistirá de preguntas muy similares a las formuladas en el Cuestionario de Riesgo Prenatal al que usted habrá respondido en la consulta del médico. Éstas son las preguntas que originalmente le remitieron al Programa de *Healthy Start*.

La segunda parte de la encuesta consistirá de preguntas relacionadas con el nivel de su capital social. El capital social es un término que se utiliza para hablar sobre su relación con amigos, vecinos, familia, comunidad y gobierno.

La tercera parte de su encuesta, sino que después de que su hijo/a haya nacido cuando se le preguntará sobre el estado de su bebé después del parto.

Hoy la encuesta tomará unos 20 minutos y la segunda vez unos 5 minutos.

ENTREVISTADOR/A:

(Añada lo que se necesite para tranquilizar a la entrevistada) Su participación en esta encuesta es completamente voluntaria y confidencial. ¿Tiene preguntas sobre la encuesta?

Se le ha seleccionado para participar en esta encuesta porque está recibiendo servicios de *Healthy Start*. No se le identificará por nombre en ningún documento resultante.

En los próximos meses los Coordinadores de *Healthy Start* entrevistarán clientes de *Healthy Start* en Florida y sus respuestas se combinarán con todas las respuestas de los demás. Tiene el derecho de rechazar su participación en la encuesta y todavía podrá recibir los servicios ofrecidos por *Healthy Start*. Tiene el derecho de rechazar cualquier pregunta que usted desee. También puede terminar la entrevista en cualquier momento.

Como participante en esta encuesta usted no sufrirá riesgo o compensación de ningún tipo. Es libre de terminar su participación pudiendo hacerlo en cualquier momento sin sufrir consecuencia alguna.

Si consiente en participar la encuesta será realizada aquí, en su casa. Yo le leeré las preguntas de la encuesta y usted me podrá decir las respuestas que yo iré anotando en el cuaderno de encuestas.

ENTREVISTADOR/A:

Permítame resaltar que su participación en esta encuesta es completamente voluntaria y confidencial. Sólo yo como Coordinador/a del cuidado *Healthy Start* sabré cuál es su identidad. Todas las encuestas están codificadas con un número y el investigador no tendrá acceso a su nombre o identidad. Los resultados del estudio serán computados junto a los de otras personas y al final del manuscrito no se publicarán ninguna de las respuestas individuales. Se mantendrá absoluta confidencialidad de su identidad y ésta no se revelará en el manuscrito final.

ENTREVISTADOR/A: comience con las preguntas aprobadas por el IRB.

Nota al/a entrevistador/a: Segunda carta de consentimiento: Por favor lea a todos los participantes antes de comenzar la encuesta.

ENTREVISTADOR/A:

Hola, (nombre de la persona). *Healthy Start* está colaborando con una estudiante de doctorado de la Universidad Central de Florida en Orlando. Se llama Jennifer James-Mesloh. Esta estudiante está realizando una encuesta que es parte de su investigación que lleva por título: *Capital social y resultados en el embarazo*. El propósito de esta investigación es aprender sobre el impacto en el embarazo del capital social y la salud de la madre.

ENTREVISTADOR/A:

Usted debe tener 18 años o más para poder participar en este proyecto. ¿Tiene usted como mínimo 18 años? (si es así, continúe, si no, no lo haga).

ENTREVISTADOR/A:

Si tiene preguntas sobre esta investigación, por favor contacte con Jennifer James-Mesloh en el número de teléfono (239) 949-0738. En caso de cualquier duda o pregunta, puede ponerse en contacto con su supervisor, el profesor Thomas T.H. Wan en el número de teléfono (407) 823-3678 o por correo twan@mail.ucf.edu.

Cualquier investigación en la Universidad Central de la Florida que involucre a personas se realiza bajo la supervisión del Consejo Institucional de Revisión (en inglés conocido por las siglas IRB). Este estudio ha sido revisado y aprobado por el IRB de la Universidad Central de Florida (UCF). Cualquier duda o pregunta sobre los derechos de los participantes en la investigación pueden ir dirigidas a la Oficina del Consejo Institucional de Revisión, el Coordinador del IRB, la Universidad Central de la Florida, la Oficina de Investigación y Comercialización, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. Número de teléfono: (407) 823-2901.

ENTREVISTADOR/A:

Se le pedirá que complete la cuarta parte de la encuesta que tomó hace unos meses. Esta segunda fase se realiza 30 días después de que haya nacido su bebé; se le harán preguntas sobre el estado de su bebé después del parto.

Hoy la encuesta tendrá una duración de 5 minutos.

ENTREVISTADOR/A:

(Añada lo que se necesite para tranquilizar a la entrevistada) Su participación en esta encuesta es completamente voluntaria y confidencial. ¿Tiene preguntas sobre la encuesta?

Se le ha seleccionado para participar en esta encuesta porque está recibiendo servicios de *Healthy Start*. No se le identificará por nombre en ningún documento resultante.

En los próximos meses los Coordinadores de *Healthy Start* entrevistarán clientes de *Healthy Start* en Ft. Myers, Florida y sus respuestas se combinarán con todas las respuestas de los demás. Tiene el derecho de rechazar su participación en la encuesta y todavía podrá recibir los servicios ofrecidos por *Healthy Start*. Tiene el derecho de rechazar cualquier pregunta que usted desee. También puede terminar la entrevista en cualquier momento.

Como participante en esta encuesta usted no sufrirá riesgo o compensación de ningún tipo. Es libre de retirar su consentimiento en participar y puede terminar su participación en la investigación en cualquier momento sin sufrir consecuencia alguna.

Si consiente en participar la encuesta será realizada aquí, en su casa. Yo le leeré las preguntas de la encuesta y usted me podrá decir las respuestas que yo iré anotando en el cuaderno de encuestas.

ENTREVISTADOR/A:

Permítame resaltar que su participación en esta encuesta es completamente voluntaria y confidencial. Sólo yo como Coordinador/a del cuidado *Healthy Start* sabré cuál es su identidad. Todas las encuestas están codificadas con un número y el investigador no tendrá acceso a su nombre o identidad. Los resultados del estudio serán computados junto a los de otras personas y

al final del manuscrito no se publicarán ninguna de las respuestas individuales. Se mantendrá absoluta confidencialidad de su identidad y ésta no se revelará en el mamuscrito final.

ENTREVISTADOR/A: comience a hacer las preguntas aprobadas por el IRB.

APPENDIX J: CONSENT LETTERS — CREOLE

Atansyon Moun K'ap Poze Keksyon-yo: Premye Lèt Konsantman: Tanpri li l' bay tout moun k'ap patisipe nan ankèt-la anvan ou kòmanse ankèt-la.

MOUN K'AP POZE KEKSYON-YO:

Bonjou, (Non moun-nan). Healthy Start ap travay ak yon etidyan k'ap fè doktora-li nan University of Central Florida nan vil Ôlando, eta Laflorid. Non-li se Jennifer James-Mesloh. L'ap fè yon rechèch ki obligatwa pou li jwenn doktora-li epi ki rele: Kapital Sosyal ak Rezilta Gwosès. Bi rechèch sa-a se jwenn kijan kapital sosyal afekte gwosès.

MOUN K'AP POZE KEKSYON-YO:

Ou dwe gen omwen 18 an pou patisipe nan rechèch sa-a. Eske ou gen 18 an oswa pi plis? (Si wi, kontinye; sinon, pa kontinye).

MOUN K'AP POZE KEKSYON-YO:

Si ou ta gen ankenm keksyon sou pwojè rechèch sa-a, tanpri rele Jennifer James-Mesloh nan (239) 949-0738. Ou kapab jwenn pwofesè k'ap sipèvize li-a, Dr. Thomas T.H. Wan, nan (407) 823-3678 oswa pa imel nan twan@mail.ucf.edu si ou ta gen keksyon pou li.

Tout rechèch k'ap fèt University of Central Florida epi ki mande patisipasyon moun ladan anba sipèvizyon Konsèy Revizyon Enstitisyonèl-la (Institutional Review Board) oswa IRB. IRB UCF-la te revwa epi apwouve etid sa-a. Si ou ta gen keksyon oswa enkyetid sou dwa moun k'ap patisipe nan etid sa-a, kontakte Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. Nimewo telefòn-nan se (407) 823-2901.

MOUN K'AP POZE KEKSYON-YO:

Y'ap mande pou ou reponn keksyon ankèt-la an de (2) fwa. Yon fwa anvan pitit-ou fèt epi yon dezyèm fwa apeprè 30 jou apre pitit-ou fèt.

Ankèt-la ap gen 3 pati ladan. Premye pati-a ap poze keksyon ki pa diferan de sa yo te poze-ou nan *Prenatal Risk Screen* ou te fè kay doktè ou-an. Se keksyon ki dabitid fè yo refere-ou

bay pwogram Healthy Start la.

Dezyèm pati ankèt-la ap poze keksyon sou nivo kapital sosyal-ou. Kapital sosyal se yon tèm yo itilize pou pale de relasyon ou genyen ak zanmi, vwazen, fanmi, kominote-ou, ak gouvènman-an.

Twazyèm pati ankèt-la pap fèt jodi-a; l'ap fèt apre pitit-ou fèt epi y'ap poze-ou keksyon sou kijan pitit ou ye depi ou fin akouche-a.

Jodi-a ankèt-la ap pran apeprè 20 minit epi dezyèm fwa-a l'ap pran apeprè 5 minit.

MOUN K'AP POZE KEKSYON-YO:

(Ajouta pawòl sila-yo si ou bezwen rasire moun-nan) W'ap patisipe nan ankèt sa-a si ou vle sèlman epi tout sa w'ap di-yo ap rete konfidansyèl. Eske ou gen ankenn keksyon ou ta renmen poze sou ankèt-la?

Yo te chwazi-ou pou patisipe nan ankèt sa-a poutèt w'ap resevwa sèvis nan men Healthy Start. Yo pap make non-ou nan ankenn dokiman y'ap ekri.

Nan mwa k'ap vini la-yo, Kowòdinatè Swen Healthy Start yo pwal kesyone apeprè 400 kliyan Healthy Start nan eta Laflorid epi y'ap konbine repons-ou ak repons tout lòt moun-yo. Ou gen dwa refize patisipe nan ankèt sa-a epi w'ap toujou kontinye resevwa sèvis nan men Healthy Start. Ou gen dwa refize reponn nenpòt ki keksyon. Ou gen dwa mete fen nan entèvyou-a tou nenpòt a nenpòt ki moman.

Pa gen risk, lajan k'ap bay oswa lòt avantaj dirèk pou ou antan ke patisipan nan entèvyou sa-a. Ou gen dwa anile konsantman ou bay pou patisipe-a epi ou gen dwa sispann patisipe nan pwojè rechèch sa-a san sa pa gen konsekans pou ou.

Patisipasyon-ou nan etid sa-a pap gen enpak sou patisipasyon ou nan Pwogram Healthy Start la. Lè ou refize patisipe nan etid sa-a oswa ou sispann patisipe nan etid sa-a, sa PA vle di ou dwe sispann ak Pwogram Healthy Start la.

Si ou dakò pou patisipe, ankèt-la ap fèt isit-la, lakay-ou. M'ap li keksyon ankèt-la pou ou epi ou kapab ban mwen repons-ou pou m'ekri-yo nan ti livrè ankèt-la.

MOUN K'AP POZE KEKSYON-YO:

Ban-mwen presize ke w'ap patisipe nan ankèt sa-a si ou vle sèlman epi tout sa w'ap di-yo ap rete konfidansyèl. Se mwen menm sèl, Kowòdinatè Healthy Start ou-an, k'ap konnen idantite-ou. Tout ankèt-yo gen yon nimewo sèlman sou-yo, kifè moun k'ap fè rechèch-la pap kapab konnen ni non-ou ni idantite-ou. Rezilta etid-la ap melanje ak pa lòt patisipan epi yo pap pibliye ankenn repons endividyèl nan dokiman final-la. Y'ap kenben idantite-ou konfidansyèl epi yo pap revele-li nan dokiman final-la.

MOUN K'AP POZE KEKSYON-YO: Kòmanse ak keksyon IRB apwouve-yo.

Atansyon Moun K'ap Poze Keksyon-yo: Dezyèm Lèt Konsantman: Tanpri li l' bay tout moun k'ap patisipe nan ankèt-la anvan ou kòmanse ankèt-la.

MOUN K'AP POZE KEKSYON-YO:

Bonjou, (Non moun-nan). Healthy Start ap travay ak yon etidyan k'ap fè doktora-li nan University of Central Florida nan vil Olando, eta Laflorid. Non-li se Jennifer James-Mesloh epi l'ap fè yon rechèch ki obligatwa pou li gradye. Rechè sa-a rele: Kapital Sosyal ak Rezilta Gwosès. Bi rechèch sa-a se jwenn kijan kapital sosyal afekte gwosès.

MOUN K'AP POZE KEKSYON-YO:

Ou dwe gen omwen 18 an pou patisipe nan rechèch sa-a. Eske ou gen 18 an oswa pi plis? (Si wi, kontinye; sinon, pa kontinye).

MOUN K'AP POZE KEKSYON-YO:

Si ou ta gen ankenn keksyon sou pwòjè rechèch sa a, tanpri rele Jennifer James Mesloh nan (239) 949-0738. Ou kapab jwenn pwofesè k'ap sipèvize li-a, Dr. Thomas T.H. Wan, nan (407) 823-3678 oswa pa imel nan twan@mail.ucf.edu si ou ta gen keksyon pou li.

Tout rechèch k'ap fèt University of Central Florida epi ki mande patisipasyon moun ladan anba sipèvizyon Konsèy Revizyon Enstitisyonèl-la (Institutional Review Board) oswa IRB. IRB UCF-la te revwa epi apwouve etid sa-a. Si ou ta gen keksyon oswa enkyetid sou dwa moun k'ap patisipe nan etid sa-a, kontakte Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. Nimenwa telefòn-nan se (407) 823-2901.

MOUN K'AP POZE KEKSYON-YO:

Y'ap mande-ou pou ou reponn keksyon (wazyèm pati ankèt ou te kòmanse patisipe ladann-nan. Fwa sa-a, sa fè apeprè 30 jou pitit ou-an fèt epi nou pwal poze-ou keksyon sou kijan pitit-la ye depi akouchman-an.

Jodi-a ankèt-la ap pran apeprè 5 minit.

MOUN K'AP POZE KEKSYON-YO:

(Ajouta pawòl sila-yo si ou bezwen rasire moun-nan) W'ap patisipe nan ankèt sa-a si ou vle sèlman epi tout sa w'ap di-yo ap rete konfidansyèl. Eske ou gen ankenn keksyon ou ta renmen poze sou ankèt-la?

Yo te chwazi-ou pou patisipe nan ankèt sa-a poutèt w'ap resevwa sèvis nan men Healthy Start. Yo pap make non-ou nan ankenn dokiman y'ap ekri.

Nan mwa k'ap vini la-yo, Kowòdinatè Swen Healthy Start yo pwal kesyone apeprè 400 kliyan Healthy Start epi y'ap konbine repons-ou ak repons tout lòt moun-yo. Ou gen dwa refize patisipe nan ankèt sa-a epi w'ap toujou kontinye resevwa sèvis nan men Healthy Start. Ou gen dwa refize reponn nenpòt ki keksyon. Ou gen dwa mete fen nan entèvyou-a tou nenpòt a nenpòt ki moman.

Pa gen risk, lajan k'ap bay oswa lòt avantaj dirèk pou ou antan ke patisipan nan entèvyou sa-a. Ou gen dwa anile konsantman ou bay pou patisipe-a epi ou gen dwa sispann patisipe nan pwojè rechèch sa-a san sa pa gen konsekans pou ou.

Patisipasyon-ou nan etid sa-a pap gen enpak sou patisipasyon ou nan Pwogram Healthy Start la. Lè ou refize patisipe nan etid sa-a oswa ou sispann patisipe nan etid sa-a, sa PA vle di ou dwe sispann ak Pwogram Healthy Start la.

Si ou dakò pou patisipe, ankèt-la ap fèt isit-la, lakay-ou. M'ap li keksyon ankèt-la pou ou epi ou kapab ban mwenn repons-ou pou m'ekri-yo nan ti livrè ankèt-la.

MOUN K'AP POZE KEKSYON-YO:

Ban-mwenn presize ke w'ap patisipe nan ankèt sa-a si ou vle sèlman epi tout sa w'ap di-yo ap rete konfidansyèl. Se mwenn menm sèl, Kowòdinatè Healthy Start ou-an, k'ap konnen idantite-ou. Tout ankèt-yo gen yon nimewo sèlman sou-yo, kifè moun k'ap fè rechèch-la pap kapab konnen ni non-ou ni idantite-ou. Rezilta etid-la ap melanje ak pa lòt patisipan epi yo pap pibliye ankenn repons endividyèl nan dokiman final-la. Y'ap kenben idantite-ou konfidansyèl epi yo pap revele-li nan dokiman final-la.

MOUN K'AP POZE KEKSYON-YO: Kòmanse ak keksyon IRB apwouve-yo.

APPENDIX K: SURVEY – ENGLISH

**2007-2008
HEALTHY START
PROGRAM EVALUATION**



**SPONSORED BY:
ORANGE COUNTY HEALTH DEPARTMENT
&
ORANGE COUNTY HEALTHY START COALITION**

43. What services or information would have been helpful or beneficial that you didn't receive? Check all that apply:

- ☐ Breastfeeding information or assistance
☐ Social support/ post-partum depression counseling
☐ Parenting information/ classes
☐ Other, please explain _____

INTERVIEWER:

This concludes all the questions.

THANK YOU FOR YOUR CONTINUED PARTICIPATION IN THIS SURVEY. YOUR PARTICIPATION HAS BEEN GREATLY APPRECIATED.

Survey Prepared by: Jennifer James-Mesloh, M.P.A.
University of Central Florida
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Consent Letter: Please read prior to beginning the survey

INTERVIEWER:

Hi, (Name of person), Healthy Start is working with a doctoral student from the University of Central Florida in Orlando, Florida. Her name is Jennifer James-Mesloh. She is conducting research required for completion of her degree titled: Social Capital and Pregnancy Outcomes. The purpose of the research is to learn how social capital impacts the pregnancy. Social capital is a term used to discuss your relationships with friends, neighbors, family, community, and government. You must be 18 years of age or older to participate in this research project. Are you at least 18? (If yes, continue; if no, discontinue).

If you have any questions about this research project, please contact Jennifer James-Mesloh at (239) 949-0738. Her faculty supervisor, Dr. Thomas T.H. Wan, may be contacted at (407) 823-3678 or by email at twan@mail.ucf.edu with any questions. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). This research study has been reviewed and approved by the UCF IRB. Questions or concerns about research participants' rights may be directed to the Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The telephone number is (407) 823-2901. This research study has also been reviewed by the Florida Department of Health Institutional Review Board. If you have questions about your rights as a research participant you may call the Florida Department of Health Institutional Review Board (DOH IRB) at (866) 433-2775 (toll free in Florida) or 850-245-4585.

You will be asked to answer survey questions at two (2) different time periods. This time period is before your baby is born and the second time period will be about 30 days after your baby is born. The survey will consist of 3 parts, the first part will ask very similar questions that appeared on the Prenatal Risk Screen you took at your doctor's office. These are the questions that originally referred you to the Healthy Start program.

The second part of the survey will ask questions about your level of social capital. Social capital is a term used to discuss your relationships with friends, neighbors, family, community, and government. The third part of the survey won't be done today, it will be done after your baby is born and you will be asked questions about how your baby is doing after the delivery. Today the survey will take about 15 minutes and the second time it will take about 5 minutes. Your participation in this survey is completely voluntary and confidential. Do you have any questions you want to ask about the survey?

You were chosen to participate in this survey because you are receiving Healthy Start services. You will not be identified by name in any document that is produced. Over the next few months Healthy Start Care Coordinators will be interviewing Healthy Start clients in Florida and your answers will be combined with everyone else's. You have the right to decline participation in the survey and you will still receive your Healthy Start services. You have the right to refuse to answer any question you want. You may also terminate the interview at any time.

There are no anticipated risks, compensation or other direct benefits to you as a participant in this interview. You are free to withdraw your consent to participate and may discontinue your participation in the research project at any time without consequence. Your participation or non-participation in this study has no impact on your participation in the Healthy Start program. Declining to participate in this study or withdrawing from this study does NOT mean that you have to drop out of the Healthy Start program. If you agree to participate the survey will be done here in your home. I will read the survey questions to you and you can tell me your answers, which I will mark in the survey booklet.

Let me stress that your participation in this survey is completely voluntary and confidential. Only myself, your Healthy Start Care Coordinator, will know your identity. All surveys are number coded and the researcher will not have access to your name or identity. Results of the study will be added together with the other participants and no individual answers will be published in the final manuscript. Your identity will be kept confidential and will not be revealed in the final manuscript.

Now that the study has been explained to you, would you like to participate?

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42. When your baby was 28 days old, what was his/her health? Check all that apply.

- ☐ Healthy, no problems
- ☐ Healthy, but currently has a common cold or illness (i.e. ear infection, sniffles)
- ☐ Colic
- ☐ Jaundice
- ☐ Fetal monitor
- ☐ NICU
- ☐ Cleft palate
- ☐ Fetal alcohol syndrome
- ☐ RSV
- ☐ Birth defect, please explain _____
- ☐ Deceased
- ☐ Don't know
- ☐ Other, please explain _____

43. Has your baby had a scheduled appointment with a pediatrician?

- ☐ Yes
- ☐ No
- ☐ No, but have a scheduled appointment within one month's time

44. What services or information was most helpful or beneficial to you during your time in the Healthy Start program? Please explain

13

Today's Date: _____

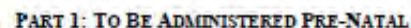
INTERVIEWER: The last set of questions for the survey will ask about how you and your baby are doing since the delivery.

☐ About once a month
☐ Twice a month
☐ More than once a month
☐ Less than once a month

38. What was the baby's birthweight? (Note to Interviewer: Please be as specific as possible, i.e. 6 lbs. 3 oz.)
[]

40. Was your baby delivered vaginally or by cesarean section/ C-section?
☐ Vaginal delivery
☐ C-section delivery

41. After your baby was born what was his/her APGAR score? (Note to Interviewer: APGAR score is based on Activity, Pulse, Grimace, Appearance, & Respiration) 1-10 is a valid answer
[]



Today's Date: _____

2. What is your age?

3. Are you married?
☐ Yes
☐ No

4. Have you graduated from high school or received a GED?
☐ Yes
☐ No

5. When you were born, did you weigh 5 1/2 lbs or less?
☐ Yes
☐ No
☐ Don't know

6. Your weight before pregnancy?
[lbs.]

7. Your height? _____ ft. _____ in.

8. Is this your first pregnancy? If no, give date your last pregnancy ended (include live birth, stillbirth, miscarriage, abortion).

[] Yes
 [] No
 [] mo. yr.]

9. Is your prenatal care covered by?

☐ Health insurance/HMO

☐ Medicaid

☐ Other health insurance: military, Indian Health, etc.

☐ No coverage

10. Do you have any problems which keep you from getting your health care or social service appointments? If yes, what is the problem?
☐ Yes, if yes, what is the problem: _____
☐ No

11. Have you moved more than 3 times in the last 12-months?
☐ Yes
☐ No

12. Do you feel unsafe where you live?
☐ Yes
☐ No

13. Do you or any member of your household go to bed hungry?
☐ Yes
☐ No

14. In the last 2 months, have you used any form of tobacco?
☐ Yes
☐ No

15. In the last 2 months, have you used drugs or alcohol (including beer, wine, mixed drinks)?
☐ Yes
☐ No

16. In the last year, has anyone hit you or tried to hurt you?
☐ Yes
☐ No

17. How do you rate your current stress level?
☐ (a) Low
☐ (b) Medium
☐ (c) High

18. If you could change the timing of this pregnancy, would you want it....
☐ (a) Earlier
☐ (b) Later
☐ (c) Not at all
☐ (d) No change

	Once	Daily	Weekly	Monthly	Yearly	Never
Worked on a community project						
Volunteered						
Had friends over to your home						
Religious services: Church, bible study, prayer group, revivals						
School events Sports, clubs, PTA						
Children's activities (not school related) Pop Warner, little league, lessons						
Salon Hair, manicure, pedicure, massage, spa						
Movie						
Watch Television						
Festival/parade						
Sports event						
Shopping mall						
Health fairs/ Health seminars						
Email (send or receive)						
Text message						
Chatroom discussion						
Blog						
MySpace or similar website						

32. Do you think you or your baby has benefited from participating in the Healthy Start program?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

33. Have you learned about maternal and child health resources available to you in Orange County by participating in the Healthy Start program?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

34. Have you shared any knowledge you gained from participating in the Healthy Start program with other pregnant women in an effort to help them?

- ☐ Never did this
- ☐ Once
- ☐ A few times (Enter only if figure cannot be clarified)
- ☐ 2-4
- ☐ 5-9
- ☐ About once a month
- ☐ Twice a month
- ☐ About once a week on average
- ☐ More than once a week

INTERVIEWER: Now I'm going to ask you how many times you have engaged in certain things in the past, if at all. For all of these, I want you just to give me your best guess, and don't worry that you might be off a little.

35. How many times in the past 12 months have you attended or participated in the following activities?

19. Have you considered adoption for this pregnancy?

- ☐ Yes
- ☐ No

20. Do you now, or have you ever had, problems with depression?

- ☐ Yes
- ☐ No

21. Do you have a history of receiving mental health counseling?

- ☐ Yes
- ☐ No

22. Is your partner employed?

- ☐ Yes
- ☐ No
- ☐ N/A

23. If you added together the yearly incomes, of all members of your household for last year, 2001, what is your annual household income. (the dollars earned per year)?

- ☐ \$ _____
- ☐ Don't know
- ☐ Refused

24. What is your employment status?

- ☐ Employed
- ☐ Employed but on maternity leave
- ☐ Unemployed

25. How would you describe your overall state of health these days? Would you say it is excellent, very good, good, fair, or poor?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Don't know
- ☐ Refused

26. What is your race?

☐ Black or African American

☐ White

☐ Hispanic or Latino

☐ Haitian Creole

☐ Other, if other, please state _____

27. Is the father of this pregnancy involved?

☐ Yes

☐ No

28. Have you been involved in the Healthy Start program in the past?

☐ Yes, if yes, how many times []

☐ No

THIS SECTION RELATES TO SOCIAL CAPITAL (Questions 29-35)

INTERVIEWER: I'd like to ask you some questions about how you view other people, groups and institutions.

29. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

☐ People can be trusted

☐ You can't be too careful

☐ Depends (Let them volunteer this information, don't offer as a choice at first)

☐ Don't know

☐ Refused

30. Next, I'd like to know how much you trust different groups of people. First, think about people in your neighborhood? Generally speaking, would you say that you can trust them.....

☐ Trust them a lot

☐ Trust them some

☐ Trust them only a little

☐ Trust them not at all

☐ Don't know

☐ Refused

31. Next, what about Healthy Start Care Coordinators?

☐ Trust them a lot

☐ Trust them some

☐ Trust them only a little

☐ Trust them not at all

☐ (VOLUNTEERED) Does not apply

☐ Don't know

☐ Refused

APPENDIX L: SURVEY – SPANISH

2007
Evaluación del Programa
de *Healthy Start*



Patrocinado por:
el Departamento de Salud del Condado de Orange
y la
Coalición del *Healthy Start* del Condado de Orange

Nota para el/a entrevistador/a: Primera carta de consentimiento: Por favor lea a todas las participantes antes de comenzar la encuesta.

ENTREVISTADOR/A:

Hola, (*nombre de la persona*). *Healthy Start* está colaborando con una estudiante de doctorado de la Universidad Central de Florida en Orlando. Se llama Jennifer James-Mesloh. Esta estudiante está realizando una encuesta como parte de su investigación que lleva por título: *Capital social y resultados en el embarazo*. El propósito de esta investigación es aprender sobre el impacto en el embarazo del capital social y la salud de la madre. Usted debe tener años 18 o más para poder participar en este proyecto. ¿Tiene usted como mínimo 18 años? (si es así, continúe, si no, no lo haga).

Si tiene preguntas sobre esta investigación, por favor contacte con Jennifer James-Mesloh en el número de teléfono (239) 949-0738. En caso de cualquier duda o pregunta, puede ponerse en contacto con su supervisor, el profesor Thomas T.H. Wan en el número de teléfono (407) 823-3678 o por correo ttwan@mail.ucf.edu.

Cualquier investigación en la Universidad Central de la Florida que involucre a personas se realiza bajo la supervisión del Consejo Institucional de Revisión (en inglés conocido por las siglas IRB). Este estudio ha sido revisado y aprobado por el IRB de la Universidad Central de Florida (UCF). Cualquier duda o pregunta sobre los derechos de los participantes en la investigación pueden ir dirigidas a la Oficina del Consejo Institucional de Revisión, el Coordinador del IRB, la Universidad Central de la Florida, la Oficina de Investigación y Comercialización, 12201 Research Parkway, Suite 501, Orlando, FL 32816-3246. Número de teléfono: (407) 823-2901.

Se le pedirá que responda a un cuestionario en dos (2) ocasiones. La primera será antes de que nazca su bebé y la segunda será unos 30 días después de que nazca su bebé. El cuestionario consistirá de 3 partes: la primera parte consistirá de preguntas muy similares a las formuladas en el Cuestionario de Riesgo Prenatal al que usted habrá respondido en la consulta del médico. Estas son las preguntas que originalmente le remitieron al Programa de *Healthy Start*.

45. ¿Que servicios o información habría sido útil o beneficiosa que no ha recibido? Indique lo que corresponda.

- ☐ Información o asistencia en lactancia
- ☐ Apoyo social / asistencia con la depresión post parto
- ☐ Información/ clases sobre crianza
- ☐ Otros, por favor explique

ENTREVISTADOR/A: Aquí se da por finalizado el cuestionario.

GRACIAS POR SU CONTINUADA PARTICIPACIÓN EN ESTA ENCUESTA.
¡APRECIAMOS MUCHO SU COLABORACIÓN!

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42. Cuando su bebé tenía 28 días, ¿Cuál era su estado de salud? Indique lo que corresponda.

- ☐] Saludable, sin problemas
☐] Saludable, pero ahora tiene un resfriado o enfermedad (por ejemplo, infección en los oídos, mocos)
☐] Cólico
☐] Ictericia
☐] Monitor fetal
☐] NICU
☐] Fisura del paladar
☐] Síndrome de alcohol fetal
☐] RSV
☐] Defecto de nacimiento, por favor explique _____
☐] Muerto
☐] No sabe
☐] Otros, por favor explique _____

43. ¿Ha tenido su bebé una cita con un pediatra?

- ☐] Sí
☐] No
☐] No, pero he concertado una cita dentro del siguiente mes

44. ¿Qué servicios o información han sido los más útiles o beneficiosos para usted durante su participación en el programa *Healthy Start*? Por favor, explique.

La segunda parte de la encuesta consistirá de preguntas relacionadas con el nivel de su capital social. El capital social es un término que se utiliza para hablar sobre su relación con amigos, vecinos, familia, comunidad y gobierno.

La tercera parte de su encuesta, sino que después de que su hijo/a haya nacido cuando se le preguntará sobre el estado de su bebé después del parto. Hoy la encuesta tomará unos 15 minutos y la segunda vez unos 5 minutos. (Añada lo que se necesite para tranquilizar a la entrevistada) Su participación en esta encuesta es completamente voluntaria y confidencial. ¿Tiene preguntas sobre la encuesta?

Se le ha seleccionado para participar en esta encuesta porque está recibiendo servicios de *Healthy Start*. No se le identificará por nombre en ningún documento resultante. En los próximos meses los Coordinadores de *Healthy Start* entrevistarán clientes de *Healthy Start* en Florida y sus respuestas se combinarán con todas las respuestas de los demás. Tiene el derecho de rechazar su participación en la encuesta y todavía podrá recibir los servicios ofrecidos por *Healthy Start*. Tiene el derecho de rechazar cualquier pregunta que usted desee. También puede terminar la entrevista en cualquier momento.

Como participante en esta encuesta usted no sufrirá riesgo o compensación de ningún tipo. Es libre de terminar su participación pudiendo hacerlo en cualquier momento sin sufrir consecuencia alguna.

Si consiente en participar la encuesta será realizada aquí, en su casa. Yo le leeré las preguntas de la encuesta y usted me podrá decir las respuestas que yo iré anotando en el cuaderno de encuestas.

Permítame resaltar que su participación en esta encuesta es completamente voluntaria y confidencial. Solo yo como Coordinador/a del estudio *Healthy Start* sabré cuál es su identidad. Todas las encuestas están codificadas con un número y el investigador no tendrá acceso a su nombre o identidad. Los resultados del estudio serán computados junto a los de otras personas y al final del manuscrito no se publicarán ninguna de las respuestas individuales. Se mantendrá absoluta confidencialidad de su identidad y ésta no se revelará en el manuscrito final.

Comience con las preguntas aprobadas por el IRB.



Parte 1: Se administrará antes del parto

Día de hoy: _____

1. ¿Calle donde vive y código postal?

[]

2. ¿Qué edad tiene?

[]

3. ¿Esta casada?

☐ Sí

☐ No

4. ¿Se graduó de la escuela secundaria o recibió un GED?

☐ Sí

☐ No

5. ¿Cuando usted nació, pesó usted 5 libras ½ o menos?

☐ Sí

☐ No

6. ¿Cuanto pesaba antes de su embarazo?

[libras]

7. ¿Cuanto mide usted?

[pies pulgadas]

8. ¿Es este su primer embarazo? Si no lo es, indique cuando fue el fin del último embarazo (aquí se incluye parto de bebé vivo o muerto, aborto y aborto natural).

☐ Sí

☐ No

[mes año]

9. ¿El cuidado prenatal está cubierto por...?

☐ Seguro médico /HMO/PPO

☐ Medicaid

☐ Otro tipo de seguro médico: militar, Indian Health, etc.

☐ No tiene seguro

2ª PARTE: SECCIÓN SOBRE EL EMBARAZO PARA SER REALIZADA DESPUÉS DEL PARTO (Preguntas: 36-45)

Día de hoy: _____

ENTREVISTADOR/A: La última serie de preguntas de este cuestionario está relacionada con el estado general del bebé y la madre después del parto.

36. ¿Con qué frecuencia durante y después de su embarazo hizo usted uso de los servicios ofrecidos por *Healthy Start*? (Nota al/a entrevistador/a: esto incluye todas las llamadas telefónicas a los Coordinadores de *Healthy Start* y las visitas a la casa de los Coordinadores de *Healthy Start*).

☐ Aproximadamente una vez al mes

☐ Dos veces al mes

☐ Más de una vez al mes

☐ Menos de una vez al mes

37. ¿Cuándo nació su bebé? (Nota para el/a entrevistador/a: ejemplo 15 septiembre, 2006)

[]

38. ¿Cuanto pesó el bebé? (Nota al/a entrevistador/a: Por favor sea tan específico como sea posible, ejemplo 6 libras 3 onzas)

[]

39. ¿Cuántas semanas estuvo embarazada cuando nació el bebé?

1-42 es una respuesta válida

[]

40. ¿Nació el bebé por cesárea o parto vaginal?

☐ Parto vaginal

☐ Cesárea

41. Después de nacer el bebé, ¿Cuál fue su medida de APGAR? (Nota para el/a entrevistador/a: la medida de APGAR se basa en Actividad, Pulso, Gesto, Apariencia y Respiración)

1-10 es una respuesta válida

[]

	Si a veces	Siempre	Algunas veces	Siempre a veces	Siempre a veces	Nunca
Trabajado en un proyecto de comunidad						
Voluntariado						
Invito a amigos a la casa						
Servicios religiosos Iglesia, estudio de la biblia, grupo de rezo, revivals						
Actividades en la escuela Deportes, clubs, PTA						
Actividades infantiles (no relacionadas con la escuela) Pop Warner, liga de beisbol, clases						
Peinqueria Cabello, manicura, pedicura, masaje, spa						
Cine						
Ver televisión						
Festival/ desfile						
Acontecimiento deportivo						
Centro comercial						
Feria/ seminario sobre la salud						
Mensaje de correo electronico (enviar o recibir)						
Mensaje de texto						
Conversación en una sala de chat						
Bitacora						
Conversación en "MySpace" o página web similar						

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10. ¿Tiene problemas que le impiden cumplir las citas medicas o de ayuda social?

- ☐ Si _____
☐ No

11. ¿Se ha mudado mas de 3 veces en los pasados 12 meses?

- ☐ Si
☐ No

12. ¿Se siente insegura donde vive?

- ☐ Si
☐ No

13. ¿Se va usted o alguien en su casa a la cama con hambre?

- ☐ Si
☐ No

14. ¿En los pasados 2 meses, ha usado algún tipo de tabaco?

- ☐ Si
☐ No

15. ¿En los pasados 2 meses, ha tomado algún tipo de alcohol (incluyendo cerveza, vi-
no, otras bebidas alcoholicas)?

- ☐ Si
☐ No

16. ¿En el pasado año, ha intentado alguien golpearlo?

- ☐ Si
☐ No

17. ¿A qué nivel pondría su estado de estrés?

- ☐ (a) Bajo
☐ (b) Mediano
☐ (c) Alto

18. Si pudiera cambiar el momento de su embarazo, lo desearia...

- ☐ (a) Antes
☐ (b) Despues
☐ (c) Ni lo desearia en absoluto
☐ (d) Sin cambios

5

19. ¿Ha considerado la adopción para este embarazo?

- ☐ Sí
☐ No

20. ¿Ha tenido alguna vez problemas de depresión?

- ☐ Sí
☐ No

21. ¿Ha recibido ayuda psicológica?

- ☐ Sí
☐ No

22. ¿Tiene trabajo su pareja?

- ☐ Sí
☐ No

23. Si sumara los sueldos anuales de todos los miembros de su casa en el pasado año, 2005, ¿cuál es su ingreso anual, dólares recibidos por año?

- ☐ \$ _____
☐ No sabe
☐ No responde

24. ¿Cuál es su estado laboral?

- ☐ Trabaja
☐ Trabaja pero con baja maternal
☐ Sin empleo

25. ¿Cómo describiría su estado de salud general? Diga que es excelente, muy bueno, bueno, normal o malo?

- ☐ Excelente
☐ Muy bueno
☐ Bueno
☐ Normal
☐ Malo
☐ No sabe
☐ No responde

32. ¿Cree que usted o su bebé se ha beneficiado del programa de *Healthy Start*?

- ☐ En todo momento
☐ Mayor parte del tiempo
☐ Parte del tiempo
☐ En algún momento
☐ En ningún momento

33. ¿Ha tenido conocimiento sobre los recursos para la maternidad y la salud infantil disponibles en el Condado de Orange a través de su participación en el programa *Healthy Start*?

- ☐ En absoluto
☐ Un poco
☐ Moderadamente
☐ Bastante
☐ Mucho

34. ¿Ha compartido el conocimiento que haya adquirido al participar en el programa *Healthy Start* con otras mujeres embarazadas en un esfuerzo por ayudarlas?

- ☐ No lo he hecho nunca
☐ Una vez
☐ Unas cuantas (Añote solo si no hay número concreto)
☐ 2-4
☐ 5-9
☐ Aproximadamente una vez al mes
☐ Dos veces al mes
☐ Aproximadamente una vez a la semana como media
☐ Más de una vez a la semana

35. ¿Cuántas veces en los pasados 12 meses ha asistido o participado en las siguientes actividades?

ESTA SECCION ESTÁ RELACIONADA CON EL CAPITAL SOCIAL
(Preguntas 29-35)

ENTREVISTADOR/A: Me gustaría hacerle algunas preguntas sobre cómo ve a otras personas, grupos e instituciones.

29. En general, ¿Diría usted que la mayoría de las personas son de fiar o que hay que tener mucho cuidado al tratar con personas?
- ☐ Se puede confiar en las personas
 - ☐ Hay que tener mucho cuidado
 - ☐ Depende (Permita que le den esta información, no la ofrezcan como opción al principio)
 - ☐ No sabe
 - ☐ No responde

30. Ahora me gustaría saber en qué medida confía en diferentes grupos de personas. Primero, piense en las personas de su vecindario. ¿Generalmente hablando, diría usted que confía en ellos...
- ☐ Confía mucho
 - ☐ Confía algo
 - ☐ Confía solo un poco
 - ☐ No confía en absoluto
 - ☐ No sabe
 - ☐ No responde

31. Ahora, ¿y en los Coordinadores de *Healthy Start*?
- ☐ Confía mucho
 - ☐ Confía algo
 - ☐ Confía solo un poco
 - ☐ No confía en absoluto
 - ☐ (VOLUNTARIO) No corresponde
 - ☐ No sabe
 - ☐ No responde

26. ¿Cuál es su raza?

- ☐ Negra o Afroamericana
- ☐ Blanca
- ☐ Hispánica o Latina
- ☐ Haitiana Criolla
- ☐ Otras, por favor especificar _____

27. ¿Tiene la participación del padre en este embarazo?

- ☐ Sí
- ☐ No

28. ¿Ha participado en el programa de *Healthy Start* anteriormente?

- ☐ Sí, cuántas veces _____
- ☐ No

APPENDIX M: SURVEY – CREOLE

2007
Evalyasyon Pwogram
Healthy Start la



Parenaj-la fèt grasa:
Depatman Sante Konte Orange
avèk
Kowalisyon Healthy Start Konte Orange

Atansyon Moun K'ap Poze Keksyon-ye; Premye Let Komantman: Tanpri li l' bay tout moun k'ap patisipe nan ankèt-la anvan ou komansè ankèt-la.

MOUN K'AP POZE KEKSYON-YO:

Bonjou, (*Non moun-nan*). Healthy Start ap travay ak yon etidyan k'ap fè doktora-li nan University of Central Florida nan vil Orlando, eta Laflorid. Non-li se Jennifer James-Mesloh. L'ap fè yon rechèch ki obligatwa pou li jwenn doktora-li epi ki rele: Kapital Sosyal ak Razilta Gwosès. Bi rechèch sa-a se jwenn kijan kapital sosyal afekte gwosès. Ou dwe gen omwen 18 an pou patisipe nan rechèch sa-a. Eke ou gen 18 an oswa pi plis? (Si wi, kontinye; sinon, pa kontinye).

Si ou ta gen ankeun kesyon sou pwaje rechèch sa-a, tanpri rele Jennifer James-Mesloh nan (239) 949-0738. Ou kapab jwenn pwofesè k'ap sipèvize li-a, Dr. Thomas T.H. Wan, nan (407) 823-3678 oswa pa imel nan twan@mail.ucf.edu si ou ta gen kesyon pou li.

Tout rechèch k'ap fèt University of Central Florida epi ki mande patisipasyon moun ladan anba sipèvizyon Komite Revizyon Enstitiyonèl-la (Institutional Review Board) oswa IRB. IRB UCF-la se revwa epi apwouve etid sa-a. Si ou ta gen kesyon oswa enkyetid sou dwa moun k'ap patisipe nan etid sa-a, kontakte Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32816-3246. Nimewo telefon-nan se (407) 823-2901.

Y'ap mande pou ou reponn kesyon ankèt-la an de (2) fwa. You fwa anvan pitit-ou fèt epi you deryem fwa apre 30 jou apre pitit-ou fèt. Ankèt-la ap gen 3 pati ladan. Premye pati-a ap poze kesyon ki pa difèran de sa yo te poze-ou nan *Prenatal Risk Screen* ou te fè kay dokte ou-an. Se kesyon ki dabidid fè yo refè-ou bay pwogram Healthy Start la.

Deryem pati ankèt-la ap poze kesyon sou nivo kapital sosyal-ou. Kapital sosyal se you tèm yo itilize pou pale de relasyon ou genyen ak zanmi, verazen, fanmi, kominote-ou, ak gouvènman-an.

45. Ki sèvis oswa enfòmasyon ki te ka ede ou oswa bayon avantaj ou pat resevwa? Cheke tout sa ki aplike

- ☐ Asitans oswa enfòmasyon sou bay let nan tèt
- ☐ Sipò sosyal/apre-akouchman konsèy pou depresyon
- ☐ Klas/enfòmasyon pou edikasyon timoun
- ☐ Lot, eksplike _____

Moun k'ap poze kesyon yo: Tout kesyon fini la

MÈSI POUTÈT OU TE PATISIPE NAN ANKÈT SA. NOU BAY PATISIPASYON OU ANPIL VALE.

Prepared by: Jennifer James-Mesloh, M.P.A.
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College of Health & Public Affairs
Public Affairs Doctoral Program
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Email: jjmesloh@yahoo.com

42. Le tibete te gen 28 jou, kouman sante li te ye? Chèke tout sa ki aplike
☐ Li an sante, san pwoblèm
☐ Li an sante, men li gen kounye ya, youn ti grip ki komen oswa maladi (stadi, enfek-
syon zorèy, youn ti rim)
☐ Vant fe mal
☐ Jemis
☐ Monite fetal
☐ NICU
☐ Palais li fann
☐ Sendrom alkol fetal
☐ RSV
☐ Defo nan nesans, ekplike _____
☐ Mouri
☐ Mwen pa konnen
☐ Lòt, ekplike _____

43. Eske ti bebe ya te gen youn randevou ak youn pedyat ?
☐ Wi
☐ Non
☐ Non, men li gen youn randevou nan youn mwè

44. Ki servis oswa enfòmasyon ki te ede ou pi plis oswa ba wou avantaj pandan tan ou
te pase nan program Healthy Start ? Ekplike tanpri souple.

Twazyèm pati anket-la pap fèt jodi-a; l'ap fèt apre piti-ou fèt epi y'ap pote-ot
kektyon sou kijan piti ou ye depi ou fin akoucha-a. Jodi-a anket-la ap pran apeprè 20
minit epi danyen fwa-a l'ap pran apeprè 5 minit.

(Ajoute pawol sila-yo si ou bezwen rasire moun-nan) W'ap patisipe nan anket
sa-a si ou vle selman epi tout sa w'ap di-yo ap rete konfidanseyèl. Eske ou gen ankenn
kektyon ou ta renmen pote sou anket-la? Yo te chwazi-ou pou patisipe nan anket sa-a
poutèt w'ap resevwa servis nan men Healthy Start. Yo pap make non-ou nan ankenn
dokiman y'ap ekri.

Nan mwè k'ap vini la-yo, Kowòdinatè Swen Healthy Start yo pral kesyone
apeprè 400 kliyan Healthy Start nan eta Laflorid epi y'ap konbine repons-ou ak repons
tout lòt moun-yo. Ou gen dwa refize patisipe nan anket sa-a epi w'ap toujou kontinye
resevwa servis nan men Healthy Start. Ou gen dwa refize repons nanpot ki kektyon. Ou
gen dwa moute fin nan entevyou-a sou nanpot a nanpot ki moun.

Pa gen risk, lajan k'ap bay oswa lòt avantaj dirèk pou ou antan ke patisipan nan
entevyou sa-a. Ou gen dwa anile konstantman ou bay pou patisipe-a epi ou gen dwa
sispann patisipe nan pwoje rechèch sa-a san sa pa gen konsekans pou ou.

Patisipasyon-ou nan etid sa-a pap gen enpak sou patisipasyon ou nan Pwogram
Healthy Start la. Le ou refize patisipe nan etid sa-a oswa ou sispann patisipe nan etid sa-
a, sa PA vle di ou dwe sispann ak Pwogram Healthy Start la. Si ou dake pou patisipe,
anket-la ap fèt isit-la, lakay-ou. M'ap li kektyon anket-la pou ou epi ou kapab ban
mwon repons-ou pou m'ekri-yo nan ti livrè anket-la.

Ban-mwen prezize ke w'ap patisipe nan anket sa-a si ou vle selman epi tout sa
w'ap di-yo ap rete konfidanseyèl. Se mwon menm tel, Kowòdinatè Healthy Start ou-an,
k'ap konnen idantite-ou. Tout anket-yo gen youn nimewo selman sou-yo, kife moun
k'ap fè rechèch-la pap kapab konnen ni non-ou ni idantite-ou. Rezilta etid-la ap melanje
ak pa lòt patisipan epi yo pap pibliye ankenn repons endividyèl nan dokiman final-la.
Y'ap kenben idantite-ou konfidanseyèl epi yo pap revele-li nan dokiman final-la.

Konmanse ak kektyon IRB apwouve-yo.



Pati 1: Administre-li anvan tibebe-an fèt

Dat jodiya: _____

1. Kisa ki adres zi ak kod postal ou ?

[]

2. Ki laj ou ?

[]

3. Eske ou marya ?

[] Wi

[] Non

4. Eske ou te gradye nan lekòl segondè api ou resevwa GED ?

[] Wi

[] Non

5. Le ou te fèt, eske ou te peye \$1/2 liv ouwa mwens ke sa ?

[] Wi

[] Non

[] Mwen pa konnen

6. Pwa ou avan ou te antant ?

[] liv

7. Wote wou ?

[] Pie pour

8. Eske te premye fwa ou antant ? Si se pasa, bay kilè se te danyè fwa ou te antant (sa ankli akouchman vivan, ti moun ki fèt tou mouri, foskouch, jete pitit).

[] Wi

[] Non

[] Mwa An

9. Eske ouwen prenatal kouvri ak ?

[] Asirans sante/yo rele an angle HMO

[] Medicaid

[] Let asirans sante: Miline, Indian Health, elatriye

PATI 2: SEKSYON REZILTA LE MOUN ANSENT POU YO BAY APRE AKOUCHEMAN (Kasyon 36-45)

Dat jodiya: _____

Moun k'ap paze kesyon yo: Danyè gwoup kesyon sa yo pou ankèt sa pral mande ou konman oumenm ak pitit yo apre akouchman

36. Konbyan fwa pandan ou te antant la api apre ou akouch ou te gen akse ouwa ou te itilize servis Healthy Start. (Nèt pou moun kab fè entèvyen a: Sa ap ankli tout apel telefoni ou bay Healthy Start Care Coordinators ansanm ak vizit lakay ak Healthy Start Care Coordinators.)

[] Aprepre yon sel fwa pamiwa

[] Defwa pamiwa

[] Lis pase yon sel fwa pa semèn

[] Plis pase yon sel fwa pa semèn

37. Kilè ti bebe ou a te fèt? (Nèt pou moun kab fè entèvyen a: Semdi 15 septanb, 2006)

[]

38. Ki pwa ti bebe ou a? (Nèt pou moun kab fè entèvyen a: Tanpri souple rete espesifik otan posib, sètadi 6 liv, 3 zons.)

[]

39. Konbyan semèn ou te genyen antant le timoun nan te fèt?

1-42 se yon repous ki gen vale

[]

40. Eske ti bebe ou a te akouch soti nan boubon ouwa yo te fè wou seziyèn/sektyon C ?

[] Akouch soti nan boubon

[] Seziyèn/sektyon C

41. Apre ti bebe ou a te fèt kisa ki te pwen APGAR li? (Nèt pou moun kab fè entèvyen a: pwen APGAR baze sou aktivite, poul, grimas, aprens ak respirasyon)

1-10 se yon repous ki gen vale

[]

	Non pas	Chak jou	Chak semen	Chak mwa	Chak ane	Chak annan
Te travay sou yon pwòje kominote						
Te fè volontarya						
Gen zanmi vinm lakay ou						
Ale legliz Lebliz, etib biblik, gwoup priya, revew						
Aktivite lekòl Espò, klèb, PTA						
Aktivite timoun (ki pa gen rapò ak lekòl) Pop Wana, ti lig, leson						
Salon Cheve, maniki, pediki, masaj, espa						
Cinema						
Gade televizyon						
Festival/parad						
Aktivite espò						
Al fè choping						
Ale ana fè sante/Semine sante						
(Ekri ouwa resevwa) imèl						
Mesaj tèks						
Diskisyon nan chatroun						
Blog						
(MySpace) Maspes ouwa lòt websait						

10

10. Eke ou gen nenpòt ki pwoblèm ki anpeche ou jwenn asirans sante ouwa jwenn ran-
devou pou sèvis sosyal? Si se wi, kisa ki pwoblèm nan?

☐ Wi, si se wi, kisa ki pwoblèm nan _____
☐ Non

11. Eke ou te bote plis ke 3 fwa pandan 12 danyè mwa ki sot pase la yo?

☐ Wi
☐ Non

12. Eki ou pa santi ou an sekirite kote wap viv la?

☐ Wi
☐ Non

13. Eke gen manm nan moun lakay ou ki al dèmi grangon?

☐ Wi
☐ Non

14. Nan 2 danyè mwa ki sot pase la yo, eke ou te pran nenpòt ki fom tabak?

☐ Wi
☐ Non

15. Nan 2 danyè mwa ki sot pase la yo, eke ou te pran dwog ouwa alkol (ankli byè,
divan, bwason melanje)?

☐ Wi
☐ Non

16. Nan ane ki fet sot pase la, eke te gen moun ki te eseye bawon kou ouwa fè wou
mal?

☐ Wi
☐ Non

17. Kouman ou mezire kantite stres ou genyen kouman yo?

☐ (a) Ba
☐ (b) Koulikousa
☐ (c) Wo

5

18. Si ou te ka chanje la ou ansent fwa sa, eske ou tap vle fè sa?

- ☐ (a) Pi bonè
- ☐ (b) Pi ta
- ☐ (c) Pa ditou
- ☐ (d) Pa gen chanjman

19. Eske ou konsidere adopteyon pou pitit ou ansent la?

- ☐ Wi
- ☐ Non

20. Eske ou gen pwoblem depresyon?

- ☐ Wi
- ☐ Non

21. Eske ou gen istwa moun ki resevwa konsèy manti?

- ☐ Wi
- ☐ Non

22. Eske moun ou avè-l la ap travay?

- ☐ Wi
- ☐ Non
- ☐ Sa pa aplikab

23. Si w ajoute tout kob ki rantre chak ane nan men tout manm nan kay la ane danyè, 2006, kisa ki kantite kob ki rantre nan kay la, (dola kay o touche chak ane)?

- ☐ \$
- ☐ Mwen pa konnen
- ☐ Mwen refize di

24. Kisa ki kondisyon travay ou kounye ya?

- ☐ Map travay
- ☐ Map travay men mwen pran yon brek paske mwen fè sot akouchè
- ☐ Mwen pa gen travay

32. Eske ou panse oumenm ouwa pitit pa wou ap benefisye nan pwogram Healthy Start la?

- ☐ Tout tan-an
- ☐ Pifò tan-an
- ☐ Kèk tan
- ☐ Yon ti kras tan
- ☐ Pa gen tan konte

33. Eske ou te aprann yon bagay ou jwè resous pou sante timoun ak manman ki la pou wou nan Orange County la ou patisipe nan pwogram Healthy Start la?

- ☐ Padimou
- ☐ Yon ti kras
- ☐ Yon jan ki modere
- ☐ Yon ti kras
- ☐ Alekstrèn

34. Eske ou jann pataje anken konesans ou jwenn la ou patisipe nan pwogram Healthy Start la ak lot fanm ki ansent nan yon efo pou ou ede yo?

- ☐ Mwen pa jann fè sa
- ☐ Yon sel fwa
- ☐ Kèk fwa (anre sa selman si nimewo sa pa ka klarifye)
- ☐ 2-4
- ☐ 5-9
- ☐ Aprepre yon sel fwa pamiwa
- ☐ Defwa pamiwa
- ☐ Aprepre yon sel fwa pa semèn anmwayen
- ☐ Plis pase yon sel fwa pa semèn

Moun k'ap pozè keryon yo: Koumye mwen pral mande ou konbye fwa ou te fè yon seri bagay fwa pase ya, sizoka. Pou tout bagay sa yo, mwen vle pou ou devine sa ki pi byen an, epi non pa vle pou ou ap bay tet ou pwoblèm sizoka ou pa yon ti jan egzak.

35. Nan 12 danyè mwa ki sot pase la, eske ou te ale ouwa patisipe nan aktivite sa yo?

SEKSYON SA GEN RAPÒ AK KAPITAL SOSYAL (KESYON 29-35)

Moun k'ap poze kesyon yo: Mwen ta renmen poze wou kèk kesyon sou konman ou wè lot moun, lot gwoup ak entiteyoun.

29. Le wap pale anjeneral, eske wap di ou ka fe pifò moun konfyans ouwa ou moun pa kab pran twop prekosyon le l-ap di ak lot moun?

☐ Ou ka fe moun konfyans.

☐ Ou pa kap pran twop prekosyon

☐ Sa depan (kite yo menm volonteman bay enfòmasyon sa, piga ou ofri yo chwè sa anpremye)

☐ Mwen pa konnen

☐ Mwen refize di

30. Mwen ta renmen konnen debo nan ki nivo ou fe diferan gwoup moun konfyans. Pou komansè, panse ak moun ki nan twazanaj ou? Le wap pale anjeneral, eske ou tap di ou fe yo konfyans...

☐ Fe yo konfyans anpil

☐ Ou fe yo kek konfyans

☐ Ou fe yo yon ti kal konfyans

☐ Ou pa fe yo konfyans ditou

☐ Mwen pa konnen

☐ Mwen refize di

31. Nan pwèn kap vini la, sa ou tap di sou koodinate Healthy Start yo?

☐ Fe yo konfyans anpil

☐ Ou fe yo kek konfyans

☐ Ou fe yo yon ti kal konfyans

☐ Ou pa fe yo konfyans ditou

☐ Ou pa kab aplike (SA OU FE YO DI VOLONTEMAN)

☐ Mwen pa konnen

☐ Mwen refize di

25. Konman w te ka dekri eta sante ou sejoua? Eske ou tap di li ekselan, m byen,

byen, pasab, ouwa pov?

☐ Ekselan

☐ Trè byen

☐ Byen

☐ Pasab

☐ Pov

☐ Mwen pa konnen

☐ Mwen refize di

26. Ki ras ou?

☐ Moun nwa ouwa Meriken Nwa

☐ Blan

☐ Panyòl ouwa Latino

☐ Ayisyen

☐ Si se lòt, mansyone li _____

27. Eske papa timoun ou anseant la ape de?

☐ Wi

☐ Non

28. Eske ou janm te pran pa na pwogram yo rele Healthy Start?

☐ Wi, si se wi, konbien fwa []

☐ Non

APPENDIX N: DETAILED ANALYSIS OF DESCRIPTIVE STATISTICS

Orange County Healthy Start Program Demographics
Comparison of Dropped vs. Completed vs. Total for the Healthy Start Program

	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
Age			
Mean	25.1 years	25.5 years	25.5 years
Median	24.5 years	24.0 years	24.0 years
Mode	21.0 years	20.0 years	20.0 & 26.0 years
Race			
Black or African American	36.8%	37.0%	36.9%
White	31.6%	18.5%	20.7%
Hispanic or Latino	21.1%	40.2%	36.9%
Haitian Creole	0.0%	3.3%	2.7%
Other	10.5%	1.1%	2.7%
Survey Language			
English	89.5%	90.2%	90.1%
Spanish	10.5%	9.8%	9.9%
Marital Status			
Yes	26.3%	21.7%	22.5%
No	73.7%	78.3%	77.5%
Graduated from High School or GED			
Yes	68.4%	59.8%	61.3%
No	31.6%	40.2%	38.7%
Mother's Birth weight Less than 5 ½ lbs.			
Yes	21.1%	14.1%	15.3%
No	42.1%	63.0%	59.5%
Don't Know	36.8%	22.8%	25.2%
Pre-pregnancy weight			
Mean	143.2 lbs.	156.7 lbs.	154.4 lbs.
Median	135.0 lbs.	145.0 lbs	145.0 lbs.
Mode	120 & 185 lbs.	145.0 lbs	145.0 lbs.
Mother's Height			
Mean	63.4 inches	63.9 inches	63.8 inches
Median	63.0 inches	64.0 inches	64.0 inches
Mode	63.0 inches	62 inches	62 & 63 inches
First Pregnancy			
Yes	42.1%	33.7%	35.1%
No	57.9%	66.3%	64.9%
Participated in Healthy Start Previously			
Yes	11.1%	16.3%	15.5%
No	88.9%	83.7%	84.5%
Employment Status			
Employed	36.8%	23.9%	26.1%
Employed but on maternity leave	0.0%	9.8%	8.1%
Unemployed	63.2%	66.3%	65.8%
Income			
Don't Know	68.4%	56.5%	58.6%
Refused	26.3%	9.8%	12.6%
Provided income information	5.3%	33.7%	28.8%
	Dropped	Completed	Total

	Healthy Start	Healthy Start	Healthy Start
Health Status			
Excellent	16.7%	9.8%	10.9%
Very good	22.2%	33.7%	31.8%
Good	38.9%	42.4%	41.8%
Fair	11.1%	12.0%	11.8%
Poor	5.6%	2.2%	2.7%
Don't Know	5.6%	0.0%	.9%

**Orange County Healthy Start Program Demographics: Risk Factors Comparison of
Dropped vs. Completed vs. Total for the Healthy Start Program**

	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
Insurance Type Covering Prenatal Care			
Health insurance/ HMO	11.1%	12.0%	11.8%
Medicaid	77.8%	70.7%	71.8%
Other health insurance: military, Indian health	5.6%	2.2%	2.7%
No coverage	5.3%	15.2%	13.6%
Problems Keeping Prenatal Care Appointments			
Yes	5.6%	13.0%	11.8%
No	94.4%	87.0%	88.2%
Moved More Than 3x in 12 months			
Yes	5.6%	3.3%	3.6%
No	94.4%	96.7%	96.4%
Feels Unsafe in Home (.262**)			
Yes	27.8%	6.5%	10.0%
No	72.2%	93.3%	90.0%
Been Hit			
Yes	11.1%	5.4%	6.4%
No	88.9%	94.6%	93.6%
Hungry			
Yes	5.6%	1.1%	1.8%
No	94.4%	98.9%	98.2%
Tobacco Use			
Yes	22.2%	9.8%	11.8%
No	77.8%	90.2%	88.2%
Drug/ Alcohol Use (.273**)			
Yes	33.3%	8.7%	12.7%
No	66.7%	91.3%	87.3%
Stress Level (-.229*)			
Low	22.2%	53.3%	48.2%
Medium	61.1%	39.1%	42.7%
High	16.7%	7.6%	9.1%
Change Timing of Pregnancy			
Earlier	11.1%	7.6%	8.2%
Later	16.7%	31.5%	29.1%
Not at all	5.6%	10.9%	10.0%
No change	66.7%	50.0%	52.7%
Consider Adoption			
Yes	0.0%	5.4%	4.5%
No	100.0%	94.6%	95.5%
Depression			
Yes	22.2%	37.0%	34.5%
No	77.8%	63.0%	65.5%
Received Counseling			
Yes	22.2%	19.6%	20.0%
No	77.8%	80.4%	80.0%
Partner Employed			
Yes	73.7%	69.6%	70.3%

	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
No	21.1%	18.5%	18.9%
N/A	5.3%	12.0%	10.8%
Father Involved			
Yes	84.2%	75.0%	76.6%
No	15.8%	25.0%	23.4%

**Orange County Healthy Start Program Participant Social Capital Factors
Comparison of Dropped vs. Completed vs. Total**

Trust Variables	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
Trust people			
People can be trusted	0.0%	15.2%	12.6%
You can't be too careful	78.9%	57.6%	61.3%
Depends	21.1%	25.0%	24.3%
Don't Know/Refused	0.0%	2.2%	1.8%
Trust neighbors			
Trust them a lot	0.0%	6.5%	5.4%
Trust them some	63.8%	43.5%	46.8%
Trust them only a little	15.8%	23.9%	22.5%
Trust them not at all	21.1%	26.1%	25.2%
Trust Healthy Start Care Coordinators			
Trust them a lot	63.2%	81.5%	78.4%
Trust them some	31.6%	15.2%	18.0%
Trust them only a little	5.3%	2.2%	2.7%
Trust them not at all	0.0%	1.1%	.9%
Reciprocity Variables			
Benefited from participating in Healthy Start			
All of the time	78.9%	79.3%	79.3%
Most of the time	5.3%	16.3%	14.4%
Some of the time	10.5%	4.3%	5.4%
A little of the time	5.3%	0.0%	.9%
None of the time	0.0%	0.0%	0.0%
Learned about maternal & child health & resources			
Extremely	68.4%	37.0%	42.3%
Quite a bit	10.5%	8.7%	30.6%
Moderately	10.5%	9.8%	9.9%
A little bit	5.3%	8.7%	8.1%
Not at all	5.3%	9.8%	9.0%
Shared information received with other pregnant women : number of times shared information			
41-80	0.0%	2.2%	1.8%
19-40	0.0%	4.3%	3.6%
10-18	0.0%	6.5%	5.4%
5-9	0.0%	2.2%	1.8%
2-4	68.4%	50.0%	53.2%
Once	21.1%	8.7%	10.8%
Never did this	10.5%	26.1%	23.4%
Civic Involvement Variables			
Past 12 months worked on a community project			
Daily	0.0%	1.1%	.9%
Weekly	0.0%	0.0%	0.0%
Monthly	0.0%	4.3%	3.6%
Once/Yearly	15.8%	16.3%	16.2%
Never	84.2%	78.3%	79.3%

	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
Past 12 months volunteered			
Daily	0.0%	2.2%	1.8%
Weekly	0.0%	3.3%	2.7%
Monthly	5.3%	12.0%	10.8%
Once/Yearly	63.2%	20.7%	27.8%
Never	31.6%	62.0%	56.8%
Past 12 months had friends over			
Daily	5.3%	19.6%	17.1%
Weekly	10.5%	28.3%	25.2%
Monthly	68.4%	26.1%	33.3%
Once/Yearly	5.3%	10.9%	9.9%
Never	10.5%	15.2%	14.4%
Past 12 months attended a religious services (Church, bible study, prayer group, revivals)			
Daily	0.0%	1.1%	.9%
Weekly	57.9%	37.0%	40.5%
Monthly	10.5%	17.4%	16.2%
Once/Yearly	21.1%	19.6%	19.8%
Never	10.5%	25.0%	22.5%
Past 12 months attended school events (Sports, clubs, PTA)			
Daily	5.3%	0.0%	.9%
Weekly	5.3%	2.2%	2.7%
Monthly	10.5%	17.4%	16.2%
Once/Yearly	10.5%	12.0%	11.7%
Never	68.4%	68.5%	68.5%
Past 12 months attended children's activities (non-school related) (Pop Warner, little league, lessons)			
Daily	0.0%	0.0%	0.0%
Weekly	5.3%	7.6%	7.2%
Monthly	5.3%	7.6%	7.2%
Once/Yearly	5.3%	12.0%	10.8%
Never	84.2%	72.8%	74.8%
Past 12 months gone to a salon			
Daily	0.0%	2.2%	1.8%
Weekly	10.5%	8.7%	9.0%
Monthly	57.9%	42.4%	45.0%
Once/Yearly	21.1%	27.2%	26.1%
Never	10.5%	19.6%	18.0%
Past 12 months gone to a movie			
Daily	10.5%	4.3%	5.4%
Weekly	5.3%	19.6%	17.1%
Monthly	63.2%	31.5%	36.9%
Once/Yearly	10.5%	23.9%	21.6%
Never	0.0%	20.7%	18.9%
Past 12 months watched TV			
Daily	84.2%	93.5%	91.9%
Weekly	10.5%	3.3%	4.5%
Monthly	5.3%	0.0%	.9%

	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
Once/Yearly	0.0%	1.1%	.9%
Never	0.0%	2.2%	1.8%
Past 12 months attended a festival			
Daily	5.3%	1.1%	1.8%
Weekly	0.0%	1.1%	.9%
Monthly	5.3%	10.9%	9.9%
Once/Yearly	73.7%	55.4%	58.6%
Never	15.8%	31.5%	28.8%
Past 12 months attended a sports event			
Daily	0.0%	1.1%	.9%
Weekly	0.0%	5.4%	4.5%
Monthly	5.3%	9.8%	9.0%
Once/Yearly	31.6%	27.2%	27.9%
Never	63.2%	56.5%	57.7%
Past 12 months went to the mall			
Daily	10.5%	3.3%	4.5%
Weekly	5.3%	23.9%	20.7%
Monthly	78.9%	48.9%	54.1%
Once/Yearly	0.0%	15.2%	12.6%
Never	5.3%	8.7%	8.1%
Past 12 months attended a health fair			
Daily	0.0%	0.0%	0.0%
Weekly	0.0%	4.3%	3.6%
Monthly	5.3%	3.3%	3.6%
Once/Yearly	26.3%	29.3%	28.8%
Never	68.4%	63.0%	64.0%
Past 12 months sent/received email			
Daily	52.6%	42.4%	44.1%
Weekly	10.5%	15.2%	14.4%
Monthly	10.5%	4.3%	5.4%
Once/Yearly	21.1%	3.3%	6.3%
Never	5.3%	34.8%	29.7%
Past 12 months sent/received text message (-.197*)			
Daily	68.4%	39.1%	44.1%
Weekly	5.3%	10.9%	9.9%
Monthly	5.3%	5.4%	5.4%
Once/Yearly	0.0%	4.3%	3.6%
Never	21.1%	40.2%	36.9%
Past 12 months been in a chatroom			
Daily	0.0%	3.3%	2.7%
Weekly	0.0%	4.3%	3.6%
Monthly	0.0%	2.2%	1.8%
Once/Yearly	0.0%	6.5%	5.4%
Never	100.0%	83.7%	86.5%
Past 12 months blogged			
Daily	5.3%	1.1%	1.8%
Weekly	0.0%	4.3%	3.6%
Monthly	5.3%	1.1%	1.8%
Once/Yearly	0.0%	1.1%	.9%
Never	89.5%	92.4%	91.9%
Past 12 months been to MySpace/ Facebook			
Daily	5.3%	18.5%	16.2%

	Dropped Healthy Start	Completed Healthy Start	Total Healthy Start
Weekly	5.3%	10.9%	9.9%
Monthly	5.3%	3.3%	3.6%
Once/Yearly	5.3%	5.4%	5.4%
Never	78.9%	62.0%	64.9%

APPENDIX O: DETAILED DESCRIPTIVE STATISTICS

Pregnancy Outcomes: Frequencies and Percentages

The weight at birth is oftentimes seen as the most important birth outcome. For the total 92 births studied, 13 (14%) were low birth weight and 79 (86%) were within the normal range. This is higher than the Orange County rate of low birth weight of 9.1% and the state of Florida rate of 8.7%. For the women in the Orange County Healthy Start program the mean birth weight was 6 lbs. 10.6 oz. (3021.5 grams), the median was 6 lbs. 13 oz. (3090.1 grams) and there were two modes of 6 lbs 11 oz. and 6 lbs. 14 oz. (3033.4 grams & 3118.4 grams). These mean rates are slightly less than or comparable to national statistics during the same timeframe; for example, the national mean birth weight for all races was 7 lbs. 4 oz. The minimum birth weight recorded in this study was 1 lb. 10 oz. (737.1 grams) and the maximum 9 lbs. 7 oz. (4280.8 grams). This represents a very large range, from very low birth weight to well above the average, even when compared to that in the general population.

The second major birth outcome is gestational age at delivery. As with birth weight, the data here are reported by the mother, so there is the possibility of human error. In aggregate, the mean gestational age was almost 38 weeks, with median and mode both 38 weeks. There is very wide range of 17 weeks with the minimum of 25 weeks to the maximum of 42 weeks. As percentages the top five are: 38 weeks (26%), 40 weeks (20%), 39 weeks (16%), 37 weeks (12%) and 36 weeks (8%) of gestation.

Of the 92 births, 26 (28%) were preterm (37 weeks or less), and 66 (72%) were within the normal gestation period of 38 weeks or more. These numbers contrast with those for preterm births in Orange County and the state of Florida which were 15.4% and 14.2% respectively, of all births for 2005-2007.

Rates of the frequency with which women accessed Healthy Start services show that the majority (54, 59.3%) accessed about once a month and the remaining at twice a month (33, 36.3%) and (4, 4.4%) accessed less than once a month. The women in the Orange County Healthy Start population delivered by C-section notably more often than those in the total Orange County or state populations. According to the Florida Department of Health CHARTS, in 2005-2007 about 35.4% of pregnant women in Orange County and 36.0% of those in the state of Florida had C-section deliveries, as compared to 45.7% (42) of the Healthy Start population.

The test of Activity, Pulse, Grimace, Appearance & Respiration (APGAR), developed in 1952 by Dr. Virginia Apgar, is a quick test of neonatal health on a scale of 1 to 10, with 10 the high score. Scores below 5 indicate the infant needs immediate assistance. Only about one-third (32) of the 92 births provided an APGAR score because the post-birth survey was conducted with the mother about one-month later and most of the respondents stated they didn't know the APGAR score or left the question blank. Given that small sample size, it was difficult to make any determinations. However, of the 32 APGAR scores, the numbers and percentages are: 15 (47%) scored a 9; 8 (25%) scored a 10; 5 (16%) scored a 8; 2 (6%) scored a 7; 1 (3%) scored a 6; and 1 (3%) scored a 2.

The mother was also asked about the baby's health at the age of 28 days. The question which originally asked the mother to check all that applied from a list of ailments was later collapsed into a dichotomous variable of healthy or health problems. All responses that were originally scored as: 1) healthy; 2) no problems and 3) healthy but currently has a common cold or illness (i.e. ear infection, sniffles) were recoded into the healthy category. All responses scored as colic, jaundice, fetal monitor, NICU, cleft palate, fetal alcohol syndrome, RSV, birth defect, deceased, or other (a blank was provided to fill in) were recoded as having health

problems. The question had a total of 89 responses with 3 missing. The majority (73, 79%) of the 92 babies born to Healthy Start participants were healthy with no problems; 16, (17%) did have health problems and data for 3 (3%) were missing. There was one infant death from the 92 births.

It is important for the infant to be seen by a pediatrician to have progress monitored. The final birth outcome question in the survey was whether a pediatrician visit had been completed, not completed or not completed but scheduled within a month. At the time of the post-birth survey 82 (90%) of the infants had been seen by a pediatrician, 6 (7%) had not but were scheduled to do so, and the remaining 3 (3%) had no appointment scheduled.

APPENDIX P: CORRELATIONS FOR MATERNAL RISK FACTORS

Survey Language

The correlations for survey language are age ($r = .248^{**}$), race ($r = .277^{**}$) and timing of pregnancy ($r = .233^{*}$).

The women who took the survey in Spanish were on average about five years older than the group who took the survey in English, 7 (63%) were 30 years or older. The mean age for those who took the survey in Spanish was 29.81, vs. 25.07 years for those using English. For older Spanish clients, all health information should be in Spanish whether oral or written.

Though the survey was offered in English, Spanish, and Haitian Creole, no one asked to take it in Haitian Creole. Not surprisingly, all the women who took the survey in Spanish identified themselves as Hispanic or Latino.

The correlation between the variables “timing of pregnancy” and “survey language” at first glance appears insignificant. Once the crosstabs are run, however, the findings are more interesting. We know that the women who took the survey in Spanish also self-identified as Hispanic or Latino; the unique finding is that 90% (10) of those women selected “no change” for the desired timing of the pregnancy, whereas only 48% (48) of the women who took the survey in English did so. The clear ethnicity-related differences in the profiles of the women are that those taking the survey in Spanish, are Hispanic or Latino, somewhat older and desire no change in the timing of their pregnancy.

Age

The correlations for age are: marital status ($r = -.342^{**}$), first pregnancy ($r = .271^{**}$), last pregnancy type ($r = -.295^{*}$) and stress level ($r = .280^{**}$).

The correlation between age and marital status support the intuitive presumption that the younger a woman is the more likely she is to be unmarried. The analysis found 87% of the women ages 18-30 to be unmarried, whereas only 13% of the women of ages 31-42 are unmarried. Thus, a high percentage of women in the Healthy Start program are entering motherhood without the support that a spouse often can provide.

The findings follow the national trend for women having their first child in their late teens and twenties. The Healthy Start cohort mirrors that norm since 92% of the women having their first child are between the ages of 18 and 30.

Surprisingly, when the crosstabulations were run the correlation between age and stress level resulted in the exact opposite of what was expected. Of those women who reported high stress levels, 70% are between the ages of 31 and 42. Further analysis with this variable found no associations among a woman's stress level, her age and program completion. Of the women who dropped the program, 89% were 30 years old or younger, and 55% of them reported medium stress levels.

Marital Status

The correlations for marital status are: tobacco ($r = .272^{**}$) and father involved ($r = .196^{*}$).

Marriage is often seen as moderating not only a person's risky behaviors but also their tobacco use (McDermott, Dobson & Owen, 2009), and that is the case for this correlation. Of the Healthy Start women who are married, 72% do not use tobacco products. That implies the influence of a spouse or perhaps additional support reducing the urge to smoke. In this

population 60% of the married women who didn't use tobacco products reported low or medium stress levels implying that marriage provides a buffer against risky behaviors.

Of the married women 92% reported the father's involvement in the pregnancy. That percentage is the same regardless of whether or not the father and the pregnant woman are married.

Education

The correlations for education (graduated from high school or GED) are: drugs ($r = -.244^*$) and employed ($r = .340^{**}$).

The correlation for the variables education and drug use is inversely related. What does not appear until the crosstabulations are conducted, however, is that for those women who are using drugs about 93% graduated from high school or acquired a GED. Given that the sample size was small, this result would call for replication, but it is intriguing because a large body of literature claims that educational attainment reduces drug use (Godley, 2006).

Of the women who had not graduated from high school or acquired a GED, 86% were unemployed. However, when the crosstabulations are reviewed, what is surprising is that fewer than half of the 68 women who had graduated from high school (47%) are employed, but 100% of the women who had graduated and also married are employed.

Prenatal Care Insurance

The correlations for prenatal care insurance are: problems with getting or keeping prenatal care appointments ($r = -.230^*$) and employed ($r = .231^*$).

Of those women who have problems with getting or keeping prenatal care, 69% have some form of health insurance. It is not surprising that there is a positive correlation between

having prenatal care insurance and being employed. Of the women who have no prenatal care coverage, 73% are unemployed.

Problems Keeping Prenatal Care Appointments

The correlations for problems keeping prenatal care appointments are: tobacco use ($r = .215^*$) and partner employed ($r = -.200^*$). Of the women with problems keeping their prenatal care appointments, 31% use tobacco. Of those women with problems keeping their appointments, about 85% are unemployed and about 54% have a partner who is unemployed. This finding implies that employment is a factor in problems keeping appointments.

Moved More than Three Times in 12 Months

The correlations for moved more than three times in 12 months are: been hit or hurt ($r = .347^{**}$) and considered adoption ($r = .191^*$). Of the women who have been hit or hurt, about 31% have moved more than three times in the past year. That suggests that Healthy Start Care Coordinators should monitor clients who move frequently for additional risk factors. The women who are moving multiple times are shown to be likely to consider adoption.

Feeling Unsafe Where You Live

The correlations for “feel unsafe where I live” are: father involved ($r = -.253^{**}$) and completed the Healthy Start program ($r = .262^{**}$). There is an inverse relationship between father involvement and feeling unsafe; an uncomfortable statistic associated with the fact that 46% of the pregnant women who feel unsafe reported that the father is involved. Therefore, domestic violence could be a factor, and Healthy Start Care Coordinators should be looking for the signs. Moreover, of those women who reported feeling unsafe, 46% dropped the program,

which can add to the danger for the unborn infant. Therefore, close monitoring is urged for the women who report feeling unsafe because they are at risk of dropping the Healthy Start program prior to delivery.

Tobacco Use

The correlations for tobacco use are: drug use ($r = .283^{**}$), considering adoption ($r = .190^{*}$) and race divided out by White or non-White ($r = .591^{**}$). The positive correlation that emerged between tobacco use and drug/alcohol use has been widely documented by previous researchers (McDermott, Dobson & Owen, 2009). There should be increased monitoring of Healthy Start clients who report any type of tobacco use since they are significantly more likely to use drugs or alcohol as well during the pregnancy.

Of the women who are using tobacco products, 40% considered adoption as an alternative to keeping the infant. However, view on the timing of the pregnancy when overlaid on the other two variables, didn't seem to influence the choice about adoption.

There is a strong correlation between race and tobacco use. Although White women are only 21% of the Healthy Start client population in this study, they account for 86% of the tobacco users. Additional support should be given to the women using tobacco products. It is noteworthy that 71% of the White women using tobacco products are married. That correlation shows that smoking cessation should be targeted at the family level and not just to the woman.

Two variables with no correlation for this study population are tobacco use and education, a surprising result since the literature supports the claim that educational attainment reduces tobacco use (Kandel, Griesler & Schaffran, 2009).

Drug Use

The correlation for drug use is: completed the Healthy Start program ($r = -.273^{**}$).

An inverse relationship was found between women's reports of drug and or alcohol use during pregnancy and their leaving the Healthy Start program. Drug use during pregnancy implies a willingness for risky behavior that lowers the probability of positive pregnancy outcomes. Women who report drug use should be tracked more closely because they are at a higher risk of dropping out of the program before delivery.

Race

The correlation for race is: desired timing of pregnancy ($r = .351^{**}$). A positive correlation was found between race and the desired timing of the pregnancy. Of the White women in the Healthy Start program, none reported that they wanted their pregnancy "not at all."

Adoption

The correlations for adoption are: father involved during pregnancy ($r = -.194^{*}$) and whether participated in Healthy Start previously ($r = .268^{**}$). An inverse relationship was found between whether a woman considered adoption and the father's involvement during the pregnancy. For the majority of the women who did consider adoption, for 60% of them the father was not involved. Also, of the women who did consider adoption 60% had previously participated in the Healthy Start program (i.e. this pregnancy was not their first).

Depression

The correlations for depression are: received counseling ($r = .545^{**}$) and father involved during pregnancy ($r = -.199^{*}$). Not surprisingly, a positive correlation was found between not

having depression and never having received counseling in the past. Nevertheless, the result is cause for concern in that 50% of the women who reported depression are not getting counseling. Additional mental health services would benefit the women in the program. Moreover, the study showed that 68% of the women who are depressed have the father involved in the pregnancy. That finding points to the usefulness of additional family counseling services for the women in the Healthy Start program.

Father Involved During Pregnancy

The correlation for father involved during pregnancy is: partner employed ($r = .455^{**}$). Of those women reporting father's involvement in the pregnancy, 79% also report that their partners are employed. Though that does not necessarily assume that the father and the partner are the same person, it does suggest that fathers are significantly more likely to be involved if they are employed.

Completed Healthy Start Program

The correlations for whether the woman completed the Healthy Start program are: feel unsafe ($r = -.262^{**}$), drug use ($r = -.273^{**}$) and stress level ($r = .229^{*}$). As already noted, feeling unsafe at home and using drugs or alcohol are inversely related to whether a woman completes the Healthy Start program. An additional correlation is stress level. In this study 53% of the women who completed the program had reported a low stress level, which may imply that program participation can help the mother handle stress.

Maternal Social Capital Index

The correlations for maternal risk factors and maternal social capital index are: survey language ($r = -.302^{**}$), education ($r = -.290^{**}$), maternal birth weight ($r = -.195^{*}$), first pregnancy ($r = -.234^{*}$), prenatal care insurance ($r = -.228^{*}$), problems keeping prenatal care appointments ($r = .219^{*}$), tobacco ($r = .190^{*}$), father involved during pregnancy ($r = -.200^{*}$) and health status ($r = -.203$).

Interestingly, race is not statistically significant with reference to the maternal social capital index; what does appear significant, however, is the language in which a woman took the survey. Of those who took the survey in Spanish, 82% scored low for social capital. Language literacy is a concern of those working in health care. This finding heightens such concern about those who are not functioning with English as a comfortable language choice.

Another maternal risk factor that correlated with low social capital index is education. Of those women who did not graduate from high school, 68% scored low on the social capital index. An equally high percentage, 69% of the women who have problems getting prenatal care also have low social capital. Of the women who have problems getting prenatal care, 78% are unemployed and have low social capital index scores. Furthermore, of those women who have low social capital index scores, 80% have no health insurance. In other words, women's lack of employment, lack of health insurance and problems keeping appointments are all linked to low social capital.

Social capital also seems to be linked with a person's tobacco use. Of those who use tobacco, 77% have low social capital, as compared to 23% of those who scored high on the social capital index. This finding leads to the conclusion that tobacco use could be a strong indicator that a pregnant woman has low social capital.

The correlations with self-reported health status are consistent with those found by previous researchers (Kawachi et al., 1999): women who self-report health excellent or very good also have high social capital. For example, 75% of the women who self-reported excellent health scored as having high social capital. The women in this study who reported their health as good or less than good had low social capital index scores.

Of the women who themselves had weighed less than 5 ½ lbs. at birth, 47% had low social capital index scores. This finding calls for further study, since it suggests health status at birth has a long-term influence on a person's ability to trust, show reciprocity, participate in civic activities and interact through social networks.

In terms of a correlation between the quality of social contacts and social capital, it appears that 65% of the women who do not have the father involved in the pregnancy also have low social capital. What is not evident for this finding is the direction of causation: which circumstance was the precedent? In any case the data indicate that keeping a family unit involved with the pregnancy and the mother's level of social capital are linked.

Correlations for Maternal Risk Factors and Pregnancy Outcomes

Access to Healthy Start

For the significant correlations of the research variables with the number of times a client accessed Healthy Start services, what is statistically significant appears to be as telling as what is not. The following variables are statistically significant in relation to frequency of accessing Healthy Start services: survey language ($r = .209^*$), graduated from high school/GED ($r = .256^{**}$), first pregnancy ($r = -.298^{**}$), moved more than three times in a 12 month period ($r = -$

.242*), feel unsafe at home ($r = -.248^*$), had friends over to their home ($r = -.275^{**}$), attended the movies ($r = -.241^*$), and used a MySpace type of website ($r = -.257^*$).

In addition to examining the variables for statistically significant correlations, examining each category within the variable in detail can be informative. In order to focus the analysis, crosstabulations were conducted. The cell for survey language that bears examining is for those women who took the survey in Spanish. Six (67%) of those women accessed Healthy Start services twice a month, which points to their desire to use the support system and social service network provided by the Healthy Start program. The finding indicates that the motivation to use the program is greater for women for whom English is a second language.

In contrast to the Spanish-speaking group, the total group of Healthy Start clients access program services about once a month (54, 59%), but when crosstabulations are conducted, the cell for the variable “graduated from high school or acquired a GED” reveals that among the women with high school diplomas, the majority (36, 67%) are accessing services only about once per month. The reverse is similar. The women who did not graduate from high school (19, 49%) are accessing services twice a month. These findings suggest that more education (high school graduation versus not) may negatively influence the frequency of accessing services.

The majority of women in the program (61, 67%) have been pregnant before; among those women 40 (74%) accessed services only about once per month. The women who have moved more than three times in the last year are accessing Healthy Start services more frequently, twice a month (67%) as compared to those who do not move frequently. Of the women who feel unsafe at home, 83% are accessing Healthy Start services twice a month.

An inverse relationship is shown between frequency of friendship contacts and accessing Healthy Start services, i.e. as friendship contacts increase the frequency with which a woman

accesses Healthy Start decreases. This finding concurs with Birkel and Reppucci (1983) that women who participate in social programs generally have sparse social networks.

Of those who access Healthy Start services twice a month, 82% have never used MySpace or similar website. Surprisingly, the frequency of accessing Healthy Start services was not affected by the contextual variable zip code. The startling findings, however, came not from the statistically significant variables but from reviewing birth outcomes in relationship to frequency of access.

Among the mothers of babies born with low birth weight, 69% accessed Healthy Start services once a month. That frequency contrasts sharply with the 88% of women whose babies were within the normal birth weight range who accessed Healthy Start services twice a month. This finding is strong indication that access to Healthy Start services is valuable for ensuring that high-risk women have normal birth weight babies.

Another correlation between infrequent access and poor pregnancy outcome is that for 69% of preterm babies, the mothers had accessed Healthy Start services once a month or less. Only 31% of babies whose mothers were seen twice a month had low birth weight or preterm delivery. With one more visit per month, the risk of low birth weight and prematurity both fell by 38%.

Among mothers whose babies had health problems 28 days after birth, 69% had accessed Healthy Start services once a month or less. Similarly, among women who had no pediatric visit or scheduled appointment, 78% had accessed Healthy Start services once a month or less. C-sections occurred for 75% of those who accessed Healthy Start services less than once a month. Of the total number of clients who had C-sections, 62% had accessed Healthy Start once a month or less.

Social capital index and access to Healthy Start services are statistically significant (-.257*). This finding supports requesting additional service dollars from the Florida Legislature. The rationale that justifies an increase is that hiring more Healthy Start Care Coordinators would make it possible for all clients to receive at least two visits per month.

The original aim of this research was to investigate whether maternal social capital directly affects birth outcomes. Some startling findings, however, emerged for the correlation of social capital index and access to Healthy Start services. While not statistically significant, the percentages tell us that those women who accessed Healthy Start services twice a month had better birth outcomes than did those who accessed them once a month or less. Those percentages suggest that more access to Healthy Start services dramatically and positively influences birth outcomes. They make the case for more Healthy Start Care Coordinator staffing and the necessary funding.

Birth Weight

The following variables are statistically significant in relation to birth weight: hunger ($r = .366^{**}$), mother's birth weight ($r = -.214^{*}$) and stress level ($r = -.250^{*}$).

Chronic hunger is tragic for anyone, but for a pregnant woman the consequences are double. It is not surprising that 100% of the sample women who reported that they went to bed hungry had very low birth weight infants. If a Healthy Start client reports hunger, the pregnancy outcome is dire and the Care Coordinator must obtain additional resources for her.

One finding that is consistent with previous research is that low birth weight mothers are at risk for having low birth weight babies. The present research found a high percentage of low birth weight babies born to women who themselves had been low birth weight. It is important

for Healthy Start Care Coordinators to monitor such mothers very closely after that information emerges at the prenatal screening. Also, this research found evidence which supports previous studies that have found a correlation between the mother's stress level and the infant's birth weight.

Prematurity

The following variables were found to be statistically significant in relation to prematurity: hunger ($r = .479^{**}$) and mother's health status ($r = -.233^{*}$).

Like birth weight, preterm delivery is affected by the mother's hunger: 100% of the women who reported going to bed hungry had preterm deliveries. Another factor that correlates with preterm delivery is the mother's health status. Eighty-one percent of the women in the study who had preterm deliveries reported their health to be fair, poor or good. The finding shows that health during pregnancy does affect outcomes and specifically preterm delivery.

APGAR Score

The following variable is considered statistically significant in relation to APGAR scores: prenatal care insurance ($r = -.353^{*}$).

The infant's APGAR score is statistically significant for whether the mother had prenatal care insurance. Thus, the level of medical care received during pregnancy has consequences for the infant at birth.

Pediatrician Visit

The following variables are considered statistically significant in relation to pediatrician visit: unsafe ($r = .209^{*}$), partner employed ($r = -.258^{*}$) and maternal employed ($r = -.238^{*}$).

Thirty-three percent of the women who did not take their infants to pediatricians following delivery had reported feeling unsafe at home. Employment also is clearly significant for whether an infant is taken to a pediatrician. The women who were employed and those whose partners were employed were more likely to take their infants to pediatrician. Of those women whose partner was employed, 95% took their infants to a pediatrician and 100% of the women who were employed did so. Those who are employed may have access to insurance that helps to pay for the visit or another factor may be in play. Those who are not employed should be monitored more closely to help ensure that they take their babies for a pediatric check-up after delivery.

Baby Health

The following variables are considered statistically significant in relation to baby health: hunger ($r = .209^{**}$) and received counseling ($r = -.258^{*}$).

For birth weight and preterm delivery, the maternal risk factor of hunger is extremely negative for poor infant health. In this study, infant health at 28 days exemplifies the pattern. Sadly, 100% of the women who reported hunger had babies who had health problems at 28 days. Again it must be stressed that hunger is a prime contributor to poor pregnancy outcomes, and such, pregnant women must be given immediate access to social services with food-based programs such as food pantries, soup kitchens and WIC.

Among pregnancy services mental health counseling is often overlooked. The data in this study demonstrate, however that none of the women who had received mental health counseling had babies with health problems, but 23% of the women who had not received mental

health counseling did. This finding suggests that mental health counseling does influence the outcome for the infant and its physical health.

Correlations of Variables by Zip Codes

Birth Outcomes

The researcher reviewed whether the birth weight outcomes were contextual. Birth weight and gestational age were reviewed at the zip code level. There were 26 zip codes involved in the study, with birth weight data for 87 births. For six of those zip codes, a total of seven births had low birth weight: 32789, 32805, 32808, 32811, 32837 and 32839. Four zip codes had a total of five infants with very low birth weight: 32703, 32806, 32808 and 32811. A total of 12 infants had birth weights below 5 lbs. and 8 oz.

Gestational age was also reviewed for correlation with preterm delivery by zip code. While many of the zip codes that had low birth weight infants also had preterm births, surprisingly there was not as much correlation as expected. The 26 zip codes had gestational age for 89 births. However, for 10 of the 26 zip codes a total of 25 infants were preterm.

Correlations for Social Capital Levels

The correlations for maternal social capital levels by zip code are: education ($r = -.231^*$), type of prenatal care insurance ($r = -.267^{**}$), prenatal care insurance ($r = -.273^{**}$), problems keeping prenatal care appointments ($r = .273^{**}$), employed ($r = -.261^{**}$), race2 ($r = .221^*$), learned ($r = .236^*$), religious ($r = -.234^*$), movie ($r = .205^*$), email ($r = .222^*$) and baby health ($r = .326^{**}$).

The criteria for categorization into low and high social capital zip codes is based on a zip code having 50% or more of the total clients from that zip code in either the low or the high social capital range. Zip codes with equal numbers of clients in both categories were not included in the analysis.

A finding that supports previous research is that baby health at 28 days old is linked to social capital by zip code. Putnam (2000) and Kawachi et al. (1997) both found that social capital is a contextual variable that affects health outcomes.

Dropped Healthy Start Program vs. Completed

The zip codes where the Healthy Start clients dropped the program are as follows: 32712, 32751, 32805, 32808, 32809, 32824, 32828, 32835, 32836, 32837, 32839, and 34787. There is some overlap of those zip codes with six of the zip codes where the low birth weight and/or preterm deliveries occurred. Thus the women living in these zip codes are at great risk for dropping the Healthy Start program, having a low birth weight baby and/or preterm delivery: 32805, 32808, 32824, 32837, 32839 and 34787.

Correlations Comparing Healthy Start Participants for Trust and Reciprocity: Dropped vs. Completed Program

Program participants were separated according to whether they completed the program or not, and those Pearson correlations were conducted. When reviewing the significant correlations of the research variables with those who dropped the program and those who did not, what is statistically significant appears to be as revealing as what is not. The following results are the Pearson correlations for Trust and the Healthy Start participants who dropped the program.

Women were asked whether they trusted people in general, their neighbors and their Healthy Start Care Coordinator. For those women who dropped the program, levels of trust are slightly different from those that completed it. However the only commonality is that those who trust their neighbors also trust their Healthy Start Care Coordinators. The Trust /Reciprocity construct variables that are statistically significant are those that trust their neighbors, trust their Healthy Start Care Coordinators ($r = .477^*$), thought they benefited from the program ($r = .468^*$), and reported learning about maternal and child health resources ($r = .687^{**}$). Those women who trust their Healthy Start Care Coordinators perceive a benefit from the program ($r = .775^*$) and reported that they had learned about maternal and child resources ($r = .648^{**}$). The final significance for those who dropped the program is a correlation between amount learned and perceived benefited from the program ($r = .539^*$).

The perceptions of Trust and Reciprocity and how they manifest appear very different between the women who dropped and those who completed the program. Those who completed the program are more likely to share the information if they trust people ($r = .229^*$), and like the other group, if they trust their neighbors they are more inclined to trust their Healthy Start Care Coordinators ($r = .250^*$).

LIST OF REFERENCES

- Abernethy, V.D. (1973). Social network and response to the maternal role. *International Journal of Sociology of the Family*, 3, 86-92.
- Adisa, O. (1994). Rocking in the sunlight: Stress and black women. In White, E. (Ed.), *The Black women's health book: Speaking for ourselves* (pp. 11-14). Seattle, Washington: Seal Press.
- Ahern, MM., Hendryx, M.S., and Siddharthan, K. (1996). The importance of sense of community on people's perceptions of their health-care experience. *Medical Care* 34, (9), 911-923.
- Alexander, G.R., Kogan, M.D., Himes, J.H., Mor, J.M, & Goldenberg, R. (1999). Racial differences in birth weight for gestational age and infant mortality in extremely-low-risk US populations. *Paediatric and Perinatal Epidemiology*, 13, 205-217.
- Almedom, A.M. (2005). Social capital and mental health: An interdisciplinary review of primary evidence. *Social Science & Medicine*, 61, 943-964.
- Almgren, G., Magarati, M. & Mogford, L. (2009). Examining the influences of gender, race, ethnicity, and social capital on the subjective health of adolescents. *Journal of Adolescence*, 32(1), 109-133.
- Alsup, R. (1995). Development of an Instrument to Measure Women's Perceptions of their Prenatal Care. (Doctoral dissertation, Washington University, St. Louis, Missouri).
- Altschuler, A., Somkin, C.P. & Adler, N.E. (2004). Local services and amenities, neighborhood social capital, and health. *Social Science & Medicine*, 59, 1219-1229.

- Anderson Moore, K., Ruane Morrison, D., Dungee Greene, A. (1997). Effects on the children born to adolescent mothers. In Maynard, R.A. (Ed.), *Kids having kids: Economic costs and social consequences of teen pregnancy* (pp. 145-180). Washington, D.C.: The Urban Institute Press.
- Avery, B. (1994). Breathing life into ourselves: The evolution of the national black women's health project. In White, E. (Ed.), *The Black women's health book: Speaking for ourselves* (pp. 4-10). Seattle, Washington: Seal Press.
- Badura, M. (1999). The Healthy Start program: Mobilizing to reduce infant mortality and morbidity. *Journal of Pediatric Nursing*, 14(4), 263-265.
- Balaji, A.B., Claussen, A.H., Smith, D.C., Visser, S.N., Johnson Morales, M., & Perou, R. (2007). Social support networks and maternal mental health and well-being. *Journal of Women's Health*, 16(10), 1386-1396.
- Baltay, M., McCormick, M.C., & Wise, P.H. (1999). Implementation of fetal and infant mortality review (FIMR): Experience from the national Healthy Start program. *Maternal and Child Health Journal*, 3(3), 141-150.
- Beaudoin, C.E. (2007). Mass media use, neighborliness, and social support: Assessing causal links with panel data. *Communication Research*, 34(6), 637-664.
- Bergman, I., Hirsch, R.P., Fria, T.J., Shapiro, S.M., Holzman, I. & Painter, M.J. (1985). Causes of hearing loss in the high-risk premature infant. *The Journal of Pediatrics*, 106(1), 95-101.
- Berkman, L.F. & Syme, S.L. (1979). Social networks, host resistance and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology*, 109(2), 186-204.

- Berry, R.J., Li, Z., Gindler, J., Liu, J.M., Zheng, J.C., Correa, A., Wang, H., Wong, L.Y. & Wang, Y. (2001). Infant death among children whose mothers took folic acid during early pregnancy. *Paediatric and Perinatal Epidemiology*, 15, A4.
- Birkel, R.C., & Reppucci, N.D. (1983). Social networks, information-seeking, and the utilization of services. *American Journal of Community Psychology*, 11(2), 185-205.
- Boroff, M., & O'Campo, P. (1996). Baltimore city Healthy Start medical reform for reducing infant mortality. *Patient Education and Counseling*, 27, 41-52.
- Bourdieu, P. (1986). The forms of capital. In J.G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). Westport, Connecticut: Greenwood Press, Inc.
- Briggs, X.S. (1998). Brown kids in White suburbs: Housing mobility and the many faces of social capital. *Housing Policy Debate*, 9(1), 177-221.
- Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York: NY: The Guilford Press.
- Byrne, B.M. (2001). *Structural equation modeling with Amos: Basic concepts, applications and programming*. New Jersey: Mahwah.
- Carlson, P. (2004). The European health divide: a matter of financial or social capital? *Social Science & Medicine*, 59, 1985-1992.
- Carpiano, R.M. (2006). Toward a neighborhood resource-based theory of social capital for health: Can Bourdieu and sociology help? *Social Science & Medicine*, 62, 165-175.
- Carpiano, R.M. (2007). Neighborhood social capital and adult health: An empirical test of a Bourdieu-based model. *Health & Place*, 13, 639-655.

- Carpiano, R.M. (2008). Actual or potential neighborhood resources and access to them: Testing hypotheses of social capital for the health of female caregivers. *Social Science & Medicine*, 67, 568-582.
- Cassel, J. (1976). The contribution of the social environment to host resistance: The fourth Wade Hampton Frost lecture. *American Journal of Epidemiology*, 104(2), 107-123.
- Cattell, V. (2001). Poor people, poor places, and poor health: The mediating role of social networks and social capital. *Social Science & Medicine*, 52, 1501-1516.
- Center for Disease Control, National Center for Health Statistics. (1998). *Health Statistics, Infant Mortality data, Table 26*.
- Center for Disease Control, National Center for Health Statistics. (2005). *Health Statistics, Infant Mortality data, Table 25*. [Data file]. Available from <http://www.cdc.gov/nchs/>
Retrieved from
ftp://ftp.cdc.gov/pub/Health_statistics/NCHS/Publications/Health_US/hus05tables/
- Chu, C., & Reilly, C. (1992, September/ October). "Healthy Start" projects aimed at infant deaths in 15 communities. *Public Health Reports*, 107, 605.
- Chuang, Y.C. & Chuang, K.Y. (2008). Gender differences in relationships between social capital and individual smoking and drinking behavior in Taiwan. *Social Science & Medicine*, 67, 1321-1330.
- Ciabattari, T. (2008). Single mothers, social capital, and work-family conflict. *Journal of Family Issues*, 28(1), 34-60.
- Clark, C.L., & Thompson, D. (2004). Factors associated with offer rates for Florida's Healthy Start Prenatal Screen: An analysis of the 2001 delivery cohort. Florida Department of

- Health. Retrieved February 3, 2009, from
<http://www.doh.state.fl.us/family/mch/docs/pdf/PrenatalScreen.pdf>
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, 38(5), 300-314.
- Cohen, S., Doyle, W.J., Skoner, D.P., Rabin, B.S. and Gwaltney, J.M. (1997). Social ties and susceptibility to the common cold. *Journal of the American Medical Association* 277, (24), 1940-1944
- Coleman, J.S. (1988). Social capital in the creation of human capital. *The American Journal of Sociology*, 94(Supplement), S95-S120.
- Collins, J. & David, R. (1990). The differential effect of traditional risk factors on infant birth weight among Blacks and Whites in Chicago. *American Journal of Public Health*, 80 (6), 679-681.
- Collins, N.L., Dunkel-Schetter, C., Lobel, M., & Scrimshaw, S.C.M. (1993). Social support in pregnancy: Psychosocial correlates of birth outcomes and postpartum depression. *Journal of Personality and Social Psychology*, 65(6), 1243-1258.
- Cooper, M. (1992). Infant Mortality. *CQ Researcher*, 2 (28), 641-664.
- Copper, R.L., Goldenberg, R.L., Das, A., Elder, N., Swain, M., Norman, G., Ramsey, R., Cotroneo, P., Collins, B.A., Johnson, F., Jones, P. & Meier, A. (1996). The preterm prediction study: Maternal stress is associated with spontaneous preterm birth at less than thirty-five weeks' gestation. *American Journal of Obstetrics and Gynecology*, 175(5), 1286-1292.

- Coutinho, R., David, R.J. & Collins, J.W. (1997). Relation of parental birth weights to infant birth weight among African Americans and Whites in Illinois: A transgenerational study. *American Journal of Epidemiology*, 146(10), 804-809.
- Crosby, R.A. & Holtgrave, D.R. (2006). The protective value of social capital against teen pregnancy: A state-level analysis. *Journal of Adolescent Health*, 38, 556-559.
- David, R. & Collins, J. (1997). Differing birth weight among infants of U.S.-born Blacks, African-born Blacks, and U.S.-born whites. *New England Journal of Medicine*, 337 (17), 1209-1214.
- Devaney, B., Bilheimer, L., & Schore, J. (1990). The savings in Medicaid costs for newborns and their mothers from prenatal participation in the WIC program, Volume 1. (Report prepared for U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation. Contract No.: 53-3198-8-63).
- Devaney, B., Foot, B., & Chu, D. (1999). *Case Management in Healthy Start/final report March 1999*. Contract No. 240-93-0050. MPR Reference No.: 8166-104. Princeton, New Jersey: Mathematica Policy Research, Inc.
- Devaney, B., Howell, E., McCormick, M., & Moreno, L. (2000). *Reducing infant mortality: Lessons learned from Healthy Start/final report July 2000*. Contract No. 240-93-0050. MPR Reference No.: 8166-113. Princeton, New Jersey: Mathematica Policy Research, Inc.
- Donovan, E.F., Ammerman, R.T., Besl, J. Atherton, H., Khoury, J.C., Altaye, M., Putnam, F.W. & Van Ginkel, J.B. (2007). Intensive home visiting is associated with decreased risk of infant death. *Pediatrics*, 119(6), 1145-1151.

- Dwyer, T. Ponsonby, A.L., Couper, D., & Cochrane, J. (1999). Short-term morbidity and infant mortality among infants who slept supine at 1 month of age-a followup report. *Paediatric and Perinatal Epidemiology*, 13, 302-315.
- Durkheim, E. (1897). *Le Suicide: e'tude do sociologie*, In *Readings from Emile Durkheim*. In K.Thompson (Ed.). (2004): Routledge
- Ellenberg, J.H. & Nelson, K.B. (1979). Birth weight and gestational age in children with cerebral palsy or seizure disorders. *American Journal of Diseases of Children*, 133, 1044-1048.
- Ellison, N., Steinfield, C. & Lampe, C. (2007). The benefits of Facebook “friends”: Social capital and college students’ use of online network sites. *Journal of Computer-Mediated Communication*, 12, 1143-1168.
- Engstrom, K., Mattsson, F., Jarleborg, A. & Hallqvist, J. (2008). Contextual social capital as a risk factor for poor self-rated health: A multilevel analysis. *Social Science & Medicine*, 66, 2268-2280.
- Erwin, N.E., Nelson, L.L. & Sheaff, L. (1999). Preventing adverse outcomes: A population focus. *Journal of Nursing Care Quality*, 13(6), 25-31.
- Ferlander, S. (2007). The importance of different forms of social capital for health. *Acta Sociologica* 50(2), 115-128.
- Fine, B. (2001). *Social Capital versus social theory: Political economy and social science at the turn of the millennium*. London and NY: Routledge.
- Flatow Culhane, J. (1999). Psychosocial risk factors associated with deaths among infants and extremely premature infants: A case-control study. Temple University.
- Florida Healthy Start Standards & Guidelines, 1998.

- For women and infants in 15 U.S. communities- A "Healthy Start". (1991, November/December). *Public Health Reports*, 106(6), 737.
- Frank, L.B., Matza, L.S., Revicki, D.A., & Chung, J.Y. (2005). Depression and health-related quality of life for low-income African-American women in the U.S. *Quality of Life Research*, 14(10), 2293-2301.
- Friis, R.H. & Sellers, T.A. (1999). *Epidemiology for public health practice* (2nd ed.). Gaithersburg, MD: Aspen Publishers, Inc.
- Fujiwara, T. & Kawachi, I. (2008). Social capital and health: A study of adult twins in the U.S. *American Journal of Preventive Medicine*, 35(2), 139-144.
- Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, 22(1), 7-20.
- Gallo, J.E. & Lennerstrand, G. (1991). A population-based study of ocular abnormalities in premature children aged 5 to 10 years. *American Journal of Ophthalmology*, 111(5), 539-547.
- Garner, M. W. (1999). *Healthy policy, healthy babies: The use of the Box-Jenkins ARIMA time series analysis to determine levels of success in Florida's healthy start program*. (Doctoral Dissertation, University of Florida).
- Gillman, M.W. (2002). Epidemiological challenges in studying the fetal origins of adult chronic disease. *International Journal of Epidemiology*, 31, 294-299.
- Gillman, M.W. (2005). Developmental origins of health and disease. *New England Journal of Medicine*, 353(17), 1848-1850.
- Gluckman, M. (1967). *The Judicial Process Among the Barotse of Northern Rhodesia*, (2nd ed.). Manchester: Manchester University Press.

- Godley, S.H. (2006). Substance use, academic performance and the village school. *Addiction*, 101, 1685-1687.
- Gold, R., Kennedy, B., Connell, F. & Kawachi, I. (2002). Teen births, income inequality, and social capital: Developing an understanding of the causal pathway. *Health & Place*,
- Golden-Kreutz, D.M., Thorton, L.M., Gregorio, S.W.D., Frierson, G.M., Jim, H.S., Carpenter, K.M., Shelby, R.A., & Anderson, B.L. (2005). Traumatic stress, perceived global stress, and life events: Prospectively predicting quality of life in breast cancer patients. *Health Psychology*, 24(3), 288-296.
- Goodin, R.E. (1996). Institutions and their designs. In R. E Goodin, (Ed.), *The theory of institutional design*. Cambridge: Cambridge University Press.
- Gorham, W. (1997). Foreword. In R.A. Maynard, (Ed.), *Kids having kids: Economic costs and social consequences of teen pregnancy* (p. x). Washington, D.C.: The Urban Institute Press.
- Gouldner, A.W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25(2), 161-178.
- Granovetter, M.S. (1973). The strength of weak ties. *The American Journal of Sociology*, 78(6), 1360-1380.
- Granovetter, M.S., (1985). Action and social structure: The picture of embeddedness. *The American Journal of Sociology*, 91(3), 481-510.
- Grant Bunch, S. (2000). *Predictors of infant mortality among babies born to African American women*. Doctoral dissertation, North Carolina State University, Raleigh, North Carolina.

- Graue, M., Wentzel-Larsen, T., Rokne Hanestad, B., & Søvnik, O. (2005). Health-related quality of life and metabolic control in adolescents with diabetes: The role of parental care, control, and involvement. *Journal of Pediatric Nursing*, 20(5), 373-382.
- Gregory, R.J. (1999). Social capital theory and administrative reform: Maintaining ethical probity in public service. *Public Administration Review*, 59(1), 63-75.
- Greiner, K.A., Li, L., Kawachi, I., Hunt, D.C. & Ahluwalia, J.S. (2004). The relationships of social participation and community ratings to health behaviors in areas with high and low population density. *Social Science & Medicine*, 59(11), 2303-2312.
- Grogger, J. (1997). Incarceration-related costs of early childbearing. In R.A. Maynard, (Ed.), *Kids having kids: Economic costs and social consequences of teen pregnancy* (pp. 231-255). Washington, D.C.: The Urban Institute Press.
- Hack, M., Klein, N.K. & Taylor, H.G. (1995). Long-term developmental outcomes of low birth weight infants. *The Future of Children*, 5(1), 176-196.
- Hack, M., Taylor, H.G., Klein, N., Eiben, R., Schatschneider, C. & Mercuri-Minich, N. (1994). School-age outcomes in children with birth weights under 750g. *The New England Journal of Medicine*, 331(12), 753-759.
- Hahn, E.A., & Cella, D. (2003). Health outcomes assessment in vulnerable populations: Measurement challenges and recommendations. *Archives of Physical Medicine and Rehabilitation*, 84(4, Supplement 2), S35-42.
- Hamilton, B.E., Martin, J.A. & Ventura, S.J. (2009, March 18). Births: preliminary data for 2007. *National Vital Statistics Reports*, 57(12), 1-23.
- Harrington, M., Foot, B., Closter, E. (1998). *Using Health Education to Reduce Infant Mortality: The Healthy Start Experience*. Washington, D.C.: Mathematica Policy Research, Inc.

- Hawe, P. & Shiell, A. (2000). Social capital and health promotion: A review. *Social Science & Medicine*, 51, 871-885.
- Healthy Start Annual Report 2007. (January 2, 2008). Florida Department of Health Infant, Maternal, and Reproductive Health.
- Herman-Giddens, M. (1994). Development of a standard for infant mortality reduction goals: How do other cohorts compare? Ann Arbor, Michigan: UMI Dissertation Services, Bell & Howell Information Company.
- Hillier, S.L., Nugent, R.P., Eschenbach, D.A., Krohn, M.A., Gibbs, R.S., Martin, D.H., Cotch, M.F., Edelman, R., Pastorek, J.G., Rao, A.V., McNellis, D., Regan, J.A., Carey, C. & Klebanoff, M.A. (1995). Association between bacterial vaginosis and preterm delivery of a low-birth-weight infant. *The New England Journal of Medicine*, 333(26), 1737-1742.
- Hoffman, S., & Hatch, M.C. (1996). Stress, social support and pregnancy outcome: A reassessment based on recent research. *Paediatric & Perinatal Epidemiology*, 10(4), 380-405.
- Hopkins, L., Thomas, J., Meredyth, D. & Ewing, S. (2004). Social capital and community building through an electronic network. *Australian Journal of Social Issues*, 39(4), 369-379.
- House, J.S., Landis, K.R., & Umberson, D. (1988). Social relationships and health. *Science*, 241(4865), 540-545.
- Howell, E., Devaney, B., Foot, B., Griffin, J., Harrington, M., Hill, I., McCormick, M., Schwalberg, R., Zambrowski, A., & Zimmerman, B. (1994). *Implementing a community-based initiative: The early years of Healthy Start*. Contract No.: 240-93-0050. MPR Reference No.: 8166-520. Princeton, New Jersey: Mathematica Policy Research, Inc.

- Howell, E., Devaney, B., Foot, B., Harrington, M., Hill, I., McCormick, M., Schettini, M., Schwalberg, R. A., & Zimmerman, B. (1997). *The Implementation of Healthy Start: Lessons For the Future*. Washington, D.C.: Mathematica Policy Research, Inc.
- Hu, J. & Meek, P. (2005). Health-related quality of life in individuals with chronic obstructive pulmonary disease. *Heart & Lung*, 34(6), 415-422.
- Hueston, W.J. & Kasik-Miller, S. (1998). Changes in functional health status during normal pregnancy. *The Journal of Family Practice*, 47(3), 209-212.
- Infant mortality and low birth weight among black and white infants- United States, 1980-2000. (2002). *Morbidity & Mortality Weekly Report*, 51(27), 589-592.
- Jared, H. & Boggess, K.A. (2008). Periodontal diseases and adverse pregnancy outcomes: A review of the evidence and implications for clinical practice. *The Journal of Dental Hygiene*, 3(Supplement), 1-24.
- Jenkinson, C., Wright, L., & Coulter, A. (1994). Criterion validity and reliability of the SF-36 in a population sample. *Quality of Life Research*, 3, 7-12.
- Jesse, D.E. & Alligood, M.R. (2002). Holistic obstetrical problem evaluation (HOPE): Testing a theory to predict birth outcomes in a group of women from Appalachia. *Health Care for Women International*, 23, 587-599.
- Johnson, W.J. (2000, September 26). Saving babies: Fighting to reduce infant mortality among immigrants and African Americans. *Village Voice*, 32.
- Jones, G.L., Ledger, W., Bonnett, T.J., Radley, S., Parkinson, N., & Kennedy, S.H. (2006). The impact of treatment for gynecological cancer on health-related quality of life (HRQoL): A systematic review. *American Journal of Obstetrics and Gynecology*, 194, 26-42.

- Kaboolian, L. (1998). The new public management: Challenging the boundaries of the management vs. administration debate. *Public Administration Review*, 58(3), 189-193.
- Kandel, D.B., Griesler, P.C. & Schaffran, C. (2009). Educational attainment and smoking among women: Risk factors and consequences for offspring. *Drug and Alcohol Dependence*, 104S, S24-S33.
- Kaplan, G.A., Pamuk, E.R., Lynch, J.W., Cohen, R.D. & Cohen, J.L. (1996). Inequality in income and mortality in the United States: analysis of mortality and potential pathways. *British Medical Journal*, 312(7037), 999-1003.
- Kavanagh, A.M., Turrell, G. & Subramanian, S.V. (2006). Does area-based social capital matter for the health of Australians? A multilevel analysis of self-rated health in Tasmania. *International Journal of Epidemiology*, 35(3), 607-613.
- Kawachi, I., Colditz, G.A., Ascherio, A., Rimm, E.B., Giovannucci, E., Stampfer, M.J., & Willett, W.C. (1996). A prospective study of social networks in relation to total mortality and cardiovascular disease in men in the US. *Journal of Epidemiology and Community Health*, 50(3), 245-251.
- Kawachi, I., Kennedy, B.P., Lochner, K., Prothrow-Stith, D. (1997). Social capital, income inequality, and mortality. *American Journal of Public Health*, 87, 1491-1498.
- Kawachi, I., Kennedy, B.P. & Glass, R. (1999). Social capital and self-rated health: A contextual analysis. *American Journal of Public Health*, 89(8), 1187-1193.
- Kawachi, I., Kim, D., Coutts, A., Subramanian, S.V. (2004). Commentary: Reconciling the three accounts of social capital. *International Journal of Epidemiology*, 33(4), 682-690.
- Kennedy, B.P., Kawachi, I., Prothrow-Stith, D., Lochner, K. & Gupta, V. (1998). Social capital, income inequality, and firearm violent crime. *Social Science & Medicine*, 47(1), 7-17.

- Kettl, D. (1993). The Competition Prescription. *In Sharing Power: Public Governance and Private Markets* (pp. 1-20). Washington, D.C.: The Brookings Institution.
- Kleinman, J. & Kessel, S. (1987). Racial differences in low birth weight: trend and risk factors. *The New England Journal of Medicine*, 317, 749-753.
- Klerman, L., Spivey, C., & Raykovich, K. (2000). Smoking reduction activities in a federal program to reduce infant mortality among high-risk women. *Tobacco Control*, 9, III51-III55.
- Kliegman, R. (1995). Neonatal technology, perinatal survival, social consequences, and the perinatal paradox. *American Journal of Public Health*, 85(7), 909-913.
- Kline, R. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: The Guilford Press.
- Kramer, M., Platt, R., Yang, H., Joseph, K., Wen, S., Morin, L., & Usher, R. (1998). Secular trends in preterm births: A hospital-based cohort study. *Journal of the American Medical Association*, 280(21), 1849-1854.
- Kramer, M.S., Goulet, L. Lydon, J., Seguin, L., McNamara, H., Dassa, C., Platt, R.W., Chen, M.F., Gauthier, H., Genest, Jr., J., Kahn, S., Libman, M., Rozen, R., Masse, A., Miner, L., Asselin, G., Benjamin, A., Klein, J., & Koren, G. (2001). Socio-economic disparities in preterm birth: Causal pathways and mechanisms. *Paediatric and Perinatal Epidemiology*, 15(Supplement 2), 104-123.
- Kraybill, E.N., Bose, C.L. & D'Ercole, A.J. (1987). Chronic lung disease in infants with very low birth weight: A population-based study. *American Journal of Diseases of Children*, 141, 784-788.

Krieger, N. (1992, Winter). The making of public health data: Paradigms, politics and policy.

Journal of Public Health Policy, 412-427.

Krueter, M.W. & Lezin, N.A. (2002). Social capital theory: Implications for community-based

health promotion. In R.J. DiClemente, R.A. Crosby, & M.C. Kegler (Eds.), *Emerging*

Theories in Health Promotion Practice and Research (pp. 228-254). San Francisco,

California: Jossey-Bass/Pfeiffer.

Lamm, R.D. (2000). Good health care is more than medicine. *Chronicle of Higher Education*,

47(4).

Landale, N.S., Oropesa, R.S., Llanes, D. (1999). Does Americanization have adverse effects on

health?: Stress, health habits, and infant health outcomes among Puerto Ricans. *Social*

Forces, 78(2), 613-641.

Lane, S., Cibula, D., Milano, L., Shaw, M., Bourgeois, B., Schweitzer, F., Steiner, C., Dygert,

K., DeMott, K., Wilson, K., Gregg, R., Webster, N., Milton, D., Aubry, R. & Novick, L.

(2001). Racial and ethnic disparities in infant mortality: Risk in social context. *Journal*

Public Health Management Practice, 7(3), 30-46.

LaVeist, T.A. (1992). The political empowerment and health status of African-Americans:

Mapping a new territory. *The American Journal of Sociology*, 97(4), 1080-1095.

LaVeist, T.A. (1993). Segregation, poverty and empowerment: health consequences for African

Americans. *The Milbank Quarterly*, 71(1), 41-64.

Lee, E., Mitchell-Herzfeld, S.D., Lowenfels, A.A., Greene, R., Dorabawila, V. & DuMont, K.A.

(2009). Reducing low birth weight through home visitation: A randomized controlled

trial. *American Journal of Preventive Medicine*, 36(2), 154-160.

- Leino-Kilpi, H., Johansson, K., Heikkinen, K., Kaljonen, A., Virtanen H., & Salanterä, S. (2005). Patient education and health-related quality of life: Surgical hospital patients as a case in point. *Journal of Nursing Care Quality*, 20(4), 307-316.
- Leopold, J. & Langwell, K. (1978). Review of the evidence on demand for health care. *Report of the National Commission on the Cost of Medical Care: American Medical Association*, 3.
- Leviton, A. (1995). Editorial: The perinatal paradox. *American Journal of Public Health*, 85(7), 906-907.
- Lillie-Blanton, M., Martinez, R. M., Taylor, A., & Robinson, B. (1993). Latina and African American women: Continuing disparities in health. *International Journal of Health Services*, 23(3), 555-584.
- Liu, K., Moon, M., Sulvetta, M., & Chawla, J. (1992). International infant mortality rankings: A look behind the numbers. *Health Care Financing Review*, 13, 105-118.
- Lobel, M., Dunkel-Schetter, C., & Scrimshaw, S.C.M. (1992). Prenatal maternal stress and prematurity: A prospective study of socioeconomically disadvantaged women. *Health Psychology*, 11(1), 32-40.
- Lochner, K, Kawachi, I. & Kennedy, B.P. (1999). Social capital: a guide to its measurement. *Health & Place*, 5, 259-270.
- Lomas, J. (1998). Social capital and health: Implications for public health and epidemiology. *Social Science & Medicine*, 47(9), 1181-1188.
- Loury, G.C. (1977). A dynamic theory of racial income differences. In P.A. Wallace & A.A. LaMond (Eds.), *Women, Minorities, and Employment Discrimination* (pp. 153-186). Lexington, Massachusetts: Heath.

- Lu, M.C., Chen, B. (2004). Racial and ethnic disparities in preterm birth: The role of stressful life events. *American Journal of Obstetrics and Gynecology*, 191, 691-699.
- Lynch, J., Due, P., Muntaner, C. & Davey Smith, G. (2000). Social capital – Is it a good investment strategy for public health? *Journal of Epidemiology and Community Health*, 54(6), 404-408.
- MacDorman, M.F., Martin, J.A., Mathews, T.J., Hoyert, D.L., & Ventura, S.J. (2005). *National Vital Statistics Reports* 53(12), 1-24.
- MacDorman, M.F. & Matthews, T.J. (2008, October). Recent trends in infant mortality in the United States. *National Center for Health Statistics Data Brief, No. 9*. Hyattsville, MD: National Center for Health Statistics.
- Macinko, J. & Starfield, B. (2001). The utility of social capital in research on health determinants. *The Milbank Quarterly*, 79(3), 387-427.
- Mamer, J. (1992). Measuring prenatal care effectiveness: Linking birth, infant death, and Medicaid files/ final report July 1992. *National Center for Health Statistics*, MPR Reference No: 7994-600.
- Marsh, H.W. & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher order factor models and their invariance across groups. *Psychological Bulletin*, 97(3), 562-582.
- Martin, J.A., Hamilton, B.E., Sutton, P.D., Ventura, S.J., Menacker, F., Kirmeyer, S., & Matthews, T.J. (2009). Births: Final data for 2006. *National Vital Statistics Reports*, 57(7), 1-102.

- Matthews, T.J., Menacker, F., MacDorman, M.F. (2003). Infant mortality statistics from the 2001 period linked birth/infant death data set. *National Vital Statistics Reports*, 52(12), 1-27.
- McCann, T. (1994). Giving our babies a chance: The public health service's Healthy Start initiative seeks to reduce the high infant mortality rates in targeted communities. *Focus*, 22, 3-4.
- McCann Goldman, T. & De La Cruz, D. (1999). The Healthy Start Initiative. In Wallace, H., Green, G., Jaros, K., Paine, L., & Story, M. (Eds.), *Health and Welfare for Families in the 21st Century* (pp. 467-482). Sudbury, Massachusetts: Jones and Bartlett Publishers.
- McCann, T., Young, B.W., Hutten, D., Hayes, A., & Wright, B. (1996). The Healthy Start Initiative: A Community-Driven Approach to Infant Mortality Reduction- Vol. IV- Community Outreach. Arlington, Virginia: National Center for Education in Maternal and Child Health.
- McClintock, J. (1997). *Free is not enough: Use of social marketing theory as a means for increasing client participation in a prenatal preventive health program*. Doctoral dissertation, University of Miami, Coral Gables, Florida.
- McCloskey, L., Plough, A.L., Power, K.L., Higgins, C.A., Cruz, A.N., & Brown, E. R. (1999). A community-wide infant mortality review: Findings and implications. *Public Health Reports*. 114, 165-177.
- McCloskey, L., & Wise, P. (1999). Maternal and infant health in the United States: Implications for women's health. In H. Wallace, G. Green, K. Jaros, L. Paine & M. Story (Eds.), *Health and Welfare for Families in the 21st Century* (pp. 347-370). Sudbury, Massachusetts: Jones and Bartlett Publishers.

- McCormick, M.C. (1985). The contribution of low birth weight to infant mortality and childhood morbidity. *The New England Journal of Medicine*, 312(2), 82-90.
- McCormick, M.C., Deal, L.W., Devaney, B.L., Chu, D., Moreno, L., and Raykovich, K.T. (2001). The impact on clients of a community-based infant mortality reduction program: The national Healthy Start program survey of postpartum women. *American Journal of Public Health*, 91(12), 1975-1977.
- McCormick, M.C., Gortmaker, S.L. & Sobol, A.M. (1990). Very low birth weight children: Behavior problems and school difficulties in a national sample. *The Journal of Pediatrics*, 117(5), 687-693.
- McDermott, L., Dobson, A. & Owen, N. (2009). Determinants of continuity and change over 10 years in young women's smoking. *Addiction*, 104, 478-487.
- McKee, M.D., Cunningham, M., Jankowski, K.R.B., & Zayas, L. (2003). Health-related functional status in pregnancy: Relationship to depression and social support in a multi-ethnic population. *Obstetrics and Gynecology*, 97(6), 988-993.
- Mitchell, C.U., & LaGory, M. (2002). Social capital and mental distress in an impoverished community. *City & Community*, 1(2), 199-222.
- Mohan, J., Twigg, L., Barnard, S. & Jones, K. (2005). Social capital, geography and health: a small-area analysis for England. *Social Science & Medicine*, 60, 1267-1283.
- Moore, S., Shiell, A., Hawe, P. & Haines, V. (2005). The privileging of communitarian ideas: Citation practices and the translation of social capital into public health research. *Public Health Matters*, 95(8), 1330-1337.

- Moore, S., Haines, V., Hawe, P. & Shiell, A. (2006). Lost in translation: a genealogy of the “social capital” concept in public health. *Journal of Epidemiology and Community Health*, 60, 729-734.
- Moreno, L., Devaney, B., Chu, D., & Seeley, M. (2000). *Effect of Healthy Start on infant mortality and birth outcomes. July 2000*. Contract No.: 240-93-0050. MPR Reference No.: 8166-111. Princeton, New Jersey: Mathematica Policy Research, Inc.
- Moss, B.G. (2002). *Examining neighborhood and individual determinants of infant mortality*. Doctoral dissertation, Wayne State University, Detroit, Michigan.
- Mullner, R., Young, G., Andersen, R. (1988, Vol. 9). Health Care Coalitions: Continuity and Changer. In Scheffler, R., & Rossiter, L. (Eds.), *Advances in Health Economics and Health Services Research: Private-Sector Involvement in Health Care: Implications For Access, Cost and Quality* (pp. 165-185). Greenwich, Connecticut: JAI Press, Inc.
- Mutale, T., Creed, F., Maresh, M. & Hunt, L. (1991). Life events and low birth weight – Analysis by infants preterm and small for gestational age. *British Journal of Obstetrics and Gynaecology*, 98, 166-172.
- Myslobodsky, M. (2001). Preterm delivery: on proxies and proximal factors. *Paediatric and Perinatal Epidemiology*, 15, 381-383.
- National Center for Health Statistics. (1995). *National Vital Statistics Reports*, 48, 11. (2000, July 24).
- Needell, B. & Barth, R.P. (1998). Infants entering foster care compared to other infants using birth status indicators. *Child Abuse & Neglect*, 22(12), 1179-1187.

- Newberger, E., Newberger, C., & Richmond, J. (1976). Child health in America: Toward a rational public policy. In McKinlay, J. (Ed.), *Issues in Health Care Policy, Milbank Reader 3* Cambridge, Massachusetts: MIT.
- Newton, R.W. & Hunt, L.P. (1984). Psychosocial stress in pregnancy and its relation to low birth weight. *British Medical Journal*, 288(6425), 1191-1194.
- Norbeck, J.S., DeJoseph, J.F. & Smith, R.T. (1999). A randomized trial of an empirically-derived social support intervention to prevent low birth weight among African American women. *Social Science & Medicine*, 43(6), 947-954.
- Nordentoft, M., Lou, H.C., Hansen, D., Nim, J., Pryds, O., Rubin, P. & Hemmingsen, R. (1996). Intrauterine growth retardation and premature delivery: The influence of maternal smoking and psychosocial factors. *American Journal of Public Health*, 86(3), 347-354.
- Nuckolls, K.B., Cassel, J., & Kaplan, B.H. (1972). Psychosocial assets, life crisis and the prognosis of pregnancy. *American Journal of Epidemiology*, 95(5), 431-441.
- O'Brien, M.S., Burdsal, C.A. & Molgaard, C.A. (2004). Further development of an Australian-based measure of social capital in a US sample. *Social Science & Medicine*, 59, 1207-1217.
- O'Shea, T.M. (2008). Diagnosis, treatment, and prevention of cerebral palsy. *Clinical Obstetrics and Gynecology*, 51(4), 816-828.
- Odding, E., Roebroek, M.E. & Stam, H.J. (2006). The epidemiology of cerebral palsy: Incidence, impairments and risk factors. *Disability and Rehabilitation*, 28(4), 183-191.

- Olds, D.L., Henderson, C.R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., Pettitt, L., Sidora, K., Morris, P. & Powers, J. (1998). Long-term effects on nurse home visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *Journal of American Medical Association*, 280(14), 1238-1244.
- Olds, D.L., Henderson, C.R., Tatelbaum, R. & Chamberlin, R. (1986). Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial of nurse home visitation. *Pediatrics*, 77(1), 16-28.
- Oorschot, W., Arts, W. & Gelissen, J. (2006). Social capital in Europe: Measurement and social and regional distribution of a multifaceted phenomenon. *Acta Sociologica*, 49(2), 149-167.
- Orr, S.T., James, S.A., Miller, C.A., Barakat, B., Daikoku, N., Pupkin, M., Engstrom, K. & Huggins, G. (1996). Psychosocial stressors and low birth weight in an urban population. *American Journal of Preventive Medicine*, 12(6), 459-466.
- Pai, C.W., & Wan, T.T.H. (1997). Confirmatory analysis of health outcome indicators. *Journal of Rehabilitation Outcomes Measurement*, 1(2), 48-59.
- Paneth, N.S. (1995). The problem of low birth weight. *The Future of Children*, 5(1), 19-34.
- Patrick, D.L., & Erickson, P. (1993). Health status and health policy: Allocating resources to health care. New York: Oxford University Press.
- Perry, M., Williams, R.L., Wallerstein, N. & Waitzkin, H. (2008). Social capital and health care experiences among low-income individuals. *American Journal of Public Health*, 98(2), 330-336.

- Petrini, J.R., Dias, T., McCormick, M.C., Massolo, M.L., Green, N.S. & Escobar, G.J. (2009). Increased risk of adverse neurological development for late preterm infants. *The Journal of Pediatrics*, 154(2), 169-176.e3.
- Petrini, J.R., Russell, R., Davidoff, M., Poschman, K., Green, N. & Damus, K. (2004). The impact of prematurity and low birth weight on the leading cause of infant mortality. *Annals of Epidemiology*, 14(8), 619-620.
- Phares, T.M., Morrow, B., Lansky, A., Barfield, W.D., Prince, C.B., Marchi, K.S., Braveman, P.A., Williams, L.M. & Kinniburgh, B. (2004). Surveillance for disparities in maternal health-related behaviors- Selected states, Pregnancy Risk Assessment Monitoring System (PRAMS), 2000-2001. *Surveillance Summaries, July 2, 2004, Morbidity and Mortality Weekly Report*, 53(SS-4), 1-14.
- Phillips, K.D., Sowell, R.L., Boyd, M., Dudgeon, W.D., Hand, G.A. and the Mind-Body Research Group. (2005). Sleep quality and health-related quality of life in HIV-infected African-American women of childbearing age. *Quality of Life Research*, 14(4), 959-970.
- Piper, J., Mitchel, E. & Ray, W. (1996). Evaluation of a program for prenatal care case management. *Family Planning Perspectives*, 28 (2), 65-68.
- Plough, A., & Olafson, F. (1994). Implementing the Boston Healthy Start initiative: A case study of community empowerment and public health. *Health Education Quarterly*, 21(2), 221-234.
- Poortinga, W. (2006). Social relations or social capital? Individual and community health effects of bonding social capital. *Social Science & Medicine*, 63, 255-270.
- Porter, T.F., Fraser, A.M., Hunter, C.Y., Ward, R.H. & Varner, M.W. (1997). The risk of preterm birth across generations. *Obstetrics & Gynecology*, 90(1), 63-67.

- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1-24.
- Putnam, R.D. (1995). Bowling alone. America's declining social capital. *Journal of Democracy* 6(1), 65-78.
- Putnam, R. D. (1995). Turning in, turning out: The strange disappearance of social capital in America. *Political Science & Politics*, 28, 664-683.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon & Schuster.
- Putnam, R.D., Leonardi, R., & Nanetti, R.Y. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, New Jersey: Princeton University Press.
- Raykovich, K., McCormick, M., Howell, E., & Devaney, B. (1996). Evaluating the healthy start program. *Evaluation & The Health Professions*, 19(3), 342-362.
- Reducing infant mortality in the United States through Healthy Start. (1991, September/October). *Public Health Reports*, 106 (5), 479-483.
- Reichman, N.E., & Nepomnyaschy, L. (2008). Maternal pre-pregnancy obesity and diagnosis of asthma in offspring at age 3 years. *Maternal & Child Health Journal*, 12, 725-733.
- Reidpath, D.D. & Allotey, P. (2003). Infant mortality rate as an indicator of population health. *Journal of Epidemiology and Community Health*, 57, 344-346.
- Roberts, E.M. (1997). Neighborhood social environments and the distribution of low birth weight in Chicago. *American Journal of Public Health*, 87(4), 597-603.
- Rosenblatt, R. (1989). The perinatal paradox: Doing more and accomplishing less. *Health Affairs*, 8(3), 158-168.

- Ross, M., Sandhu, M., Bemis, R., Nessim, S., Bragonier, R. & Hobel, C. (1994). The west Los Angeles preterm birth prevention project: Cost effectiveness analysis of high-risk pregnancy interventions. *Obstetrics and Gynecology*, 29 (2), 506-510.
- Ross, J.A., Swensen, A.R. & Murphy, S.E. (2002). Prevalence of cigarette smoking in pregnant women participating in the special supplement nutrition programme for Women, Infants and Children (WIC) in Minneapolis and Saint Paul, Minnesota, USA. *Paediatric and Perinatal Epidemiology*, 16, 246-248.
- Rowland Hogue, C.J., & Vasquez, C. (2002). Toward a strategic approach for reducing disparities in infant mortality. *American Journal of Public Health* 92(4), 552-556.
- Sabatini, F. (2008). Social capital as social networks: A new framework for measurement and an empirical analysis of its determinants and consequences. *Journal of Socio-Economics*, doi:10.1016/j.socec.2008.06.001
- Salihu, H.M., Mbah, A.K., Jeffers, D., Alio, A.P. & Berry, L. (2009). Healthy Start program and fetto-infant morbidity outcomes: Evaluation of program effectiveness. *Maternal Child Health Journal*, 13, 56-65.
- Sanderson, M.I., Emanuel, I. & Holt, V.L. (1995). The intergenerational relationship between mother's birth weight, infant birth weight, and infant mortality in Black and White mothers. *Paediatric and Perinatal Epidemiology*, 9(4), 391-405.
- Santos, J.R.A. (1999). Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of Extension*, 37(2), 1-5.
- Savage, C.L., Anthony, J., Lee, R., Kappesser, M.L., & Rose, R. (2007). The culture of pregnancy and infant care in African American women: An ethnographic study. *Journal of Transcultural Nursing*, 18(3), 215-223.

- Saving the children in New York. (2000, August). *New York Amsterdam News*, 91(30), 16.
- Schultz, J., O'Brien, A.M. & Tadesse, B. (2008). Social capital and self-rated health: Results from the US 2006 social capital survey of one community. *Social Science & Medicine*, 67, 606-617.
- Seippel, O. (2006). Sport and social capital. *Acta Sociologica*, 49(2), 169-183.
- Sepkowitz, S. (1994). Why infant very low birth weight rates have failed to decline in the United States vital statistics. *International Journal of Epidemiology*, 23(2), 321-326.
- Shen, C., & Williamson, J. B. (2001). Accounting for cross-national differences in infant mortality decline (1965-1991) among less developed countries: Effects of women's status, economic dependency, and state strength. *Social Indicators Research*, 53, 257-288.
- Shiono, P.H. & Behrman, R.E. (1995). Low birth weight: Analysis and Recommendations. *The Future of Children*, 5(1), 4-18.
- Siahpush, M., Borland, R., Taylor, J., Singh, G.K., Ansari, Z. & Serraglio, A. (2006). The association of smoking with perception of income inequality, relative material well-being, and social capital. *Social Science & Medicine*, 63(11), 2801-2812.
- Sidebotham, P. & Heron, J. (2003). Child maltreatment in the "children of the nineties:" the role of the child. *Child Abuse & Neglect*, 27(3), 337-352.
- Simon, D.M., Vyas, S., Prachand, N.G., David, R.J., & Collins, J.W. (2006). Relation of maternal low birth weight to infant growth retardation and prematurity. *Maternal & Child Health Journal*, 10(4), 321-327.

- Smith, P.J. (2006). *Inequality and infant health: A multilevel approach to disentangling correlations of metropolitan/nonmetropolitan disparities in low birth weight infants*. Doctoral dissertation, Pennsylvania State University, Pennsylvania.
- Solomon, R. & Liefeld, C.P. (1998). Effectiveness of a family support center approach to adolescent mothers: Repeat pregnancy and school drop-out rates. *Family Relations*, 47 (2), 139-144.
- Son, J. & Lin, N. (2008). Social capital and civic action: A network-based approach. *Social Science Research*, 37, 330-349.
- Stafford, M., Cummins, S., Macintyre, S., Ellaway, A. & Marmot, M. (2005). Gender differences in the associations between health and neighborhood environment. *Social Science & Medicine*, 60, 1681-1692.
- Stephens, C. (2008). Social capital in its place: Using social theory to understand social capital and inequalities in health. *Social Science & Medicine*, 66, 1174-1184.
- Straughan, D. (2001). Women's work: public relations efforts of the US Children's Bureau to reduce infant and maternal mortality, 1912-1921. *Public Relations Review*, 27(3), 337-351.
- Strine, T.W., Hootman, J.M., Chapman, D.P., Okoro C.A., & Balluz, L. (2005). Health-related quality of life, health risk behaviors, and disability among adults with pain-related activity difficulty. *American Journal of Public Health*, 95(11), 2042-2048.
- Strobino, D., O'Campo, P., Schendorf, K., Lawrence, J. M., Oberdorf, M. A., Paige, D. M., & Guyer, B. (1995). A strategic framework for infant mortality reduction: Implications for "Healthy Start". *The Milbank Quarterly*, 7 (4), 507-533.

- Subramanian, S.V., Kawachi, I. & Kennedy, B.P. (2001). Does the state you live in make a difference? Multilevel analysis of self-rated health in the US. *Social Science & Medicine*, 53, 9-19.
- Sun, Y., Vestergaard, M., Pedersen, C.B., Christensen, J., Basso, O. & Olsen, J. (2008). Gestational age, birth weight, intrauterine growth, and the risk of epilepsy. *American Journal of Epidemiology*, 167(3), 262-270.
- Szreter, S., & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, 33(4), 650-667.
- Thompson, D.R., Hopkins, R.S., & Watkins, S.M. (1993). Using the birth record to develop a screening instrument for infant mortality and morbidity. *Florida Journal of Public Health*, V(1), 4-7.
- Tollini, C. (2005). *Assessing Putnam's theory of social capital through the use of path analysis* (Doctoral dissertation, Western Michigan University).
- Turrell, G., Kavanagh, A. & Subramanian, S.V. (2006). Area variation in mortality in Tasmania (Australia): The contributions of socioeconomic disadvantage, social capital and geographic remoteness. *Health & Place*, 12, 291-305.
- Tuthill, D.P., Stewart, J.H., Coles, E.C., Andrews, J. & Cartlidge, P.H.T. (1999). Maternal cigarette smoking and pregnancy outcome. *Paediatric and Perinatal Epidemiology*, 13, 245-253.
- Uslaner, E. (1999). Democracy and Social Capital. In M. Warren (Ed.) *Democracy and Trust*, pp. 121–150. Cambridge: Cambridge University Press.

- Vangen, S., Stoltenberg, C., Skhaerven, R., Magnus, P., Harris, J.R. & Stray-Pedersen, B. (2002). The heavier the better? Birth weight and perinatal mortality in different ethnic groups. *International Journal of Epidemiology*, 31, 654-660.
- Veenstra, G. & Lomas, J. (1999). Home is where the governing is: social capital and regional health governance. *Health & Place*, 5, 1-12.
- Veenstra, G., Luginaah, I., Wakefield, S., Birch, S., Eyles, J. & Elliott, S. (2005). Who you know, where you live: social capital, neighborhood and health. *Social Science & Medicine*, 60, 2799-2818.
- Walker, J.L., Holben, D.H., Kropf, M.L., Holcomb, J.P. & Anderson, H. (2007). Household food insecurity is inversely associated with social capital and health in females from special supplemental nutrition program for women, infants, and children households in Appalachian Ohio. *Journal of the American Dietetic Association*, 107(11), 1989-1993.
- Walker, S.K. & Riley, D.A. (2001). Involvement of the personal social network as a factor in parent education effectiveness. *Family Relations*, 50(2), 186-193.
- Wan, T.T.H. (2002). Evidence-based health care management: Multivariate *modeling approaches*. Boston, MA: Kluwer Academic Publishers.
- Wan, T.T.H. & Lin, B.Y.J. (2003). Social capital, health status, and health service use among older women in Almaty, Kazakhstan. *Research in the Sociology of Health Care*, 21, 163-180.
- Wan, T.T.H. (2006). Researchers class notes from Structural Equation Modeling.
- Wang, H., Schlesinger, M., Wang, H. & Hsiao, W.C. (2008). The flip-side of social capital: The distinctive influences of trust and mistrust on health in rural China. *Social Science & Medicine*, 1-10, doi: 10.1016/j.socscimed.2008.09.038.

- Wang, X., Zuckerman, B., Coffman, G.A. & Corwin, M.J. (1995). Familial aggregation of low birth weight among Whites and Blacks in the United States. *The New England Journal of Medicine*, 333(26), 1744-1749.
- Wann-Hansson, C., Rahm Hallberg, I., Risberg, B., Lundell, A., & Klevsgard, R. (2005). Health-related quality of life after revascularization for peripheral arterial occlusive disease: long-term follow-up. *Journal of Advanced Nursing*, 51(3), 227-235.
- Ware, J.E. (2003). Conceptualization and measurement of health-related quality of life: Comments on an evolving field. *Archives of Physical Medicine and Rehabilitation*, 84(4, Supplement 2), S43-S51.
- Ware, J.E., Kosinski, M. and Dewey, J.E. (2000). *How to score version 2 of the SF-36 Health Survey (standard and acute forms)*. Lincoln, RI: QualityMetric, Inc.
- Ware, J.E., Snow, K.K., and Kosinski, M. (2000). *SF-36 Health Survey: Manual and interpretation guide*. Lincoln, RI: Quality Metric Incorporated.
- Wasse, H., Holt, V., & Darling, J. (1994). Pregnancy risk factors and birth outcomes in Washington state: A comparison of Ethiopian-born and U.S.-born women. *American Journal of Public Health*, 84(9), 1505-1507.
- Wegman, M. E. (1994). Annual summary of vital statistics-1993. *Pediatrics*, 94, 792-803.
- Whitehead, E., Dodds, L., Joseph, K.S., Gordon, K.E., Wood, E., Allen, A.C., Camfield, P. & Dooley, J.M. (2006). Relation of pregnancy and neonatal factors to subsequent development of childhood epilepsy: A population-based cohort study. *Pediatrics*, 117(4), 1298-1306.
- Wilkinson, R. (1996). *Unhealthy societies*. London: Routledge Press.

- Wilkinson, R. (2000). Inequality and the social environment: A reply to Lynch et al., *Journal of Epidemiology and Community Health*, 54(6), 411-413.
- Wilcox, A.J. (2001). On the importance-and the unimportance of birth weight. *International Journal of Epidemiology*, 30, 1233-1241.
- Williams, B.C. (1994). Social approaches to lowering infant mortality: Lessons from the European experience. *Journal of Public Health Policy*, 15, 18-25.
- Wolf, S. and Bruhn, J.G. (1993). *The Power of Clan: The Influence of Human Relationships on Heart Disease*. NJ: Transaction Publishers.
- Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society*, 27(2), 151-208.
- World Health Organization, accessed: December 3, 2008;
http://www.who.int/whosis/database/core/core_select_process.cfm